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# A HISTORY

OF

# EPIDEMIC PESTILENCES

FROM THE EARLIEST AGES,

1495 Years before the Birth of our Saviour to 1848:

WITH

## RESEARCHES INTO THEIR NATURE, CAUSES, AND PROPHYLAXIS.

BY

EDWARD BASCOME, M.D.

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SAN FRANCISCO

"The all-surrounding heav'n, the vital air,
Is big with death: and tho' the putrid south
Be shut, tho' no convulsive agony
Shake from the deep foundations of the world
Th' imprison'd plagues, a secret venom oft
Corrupts the air, the water, and the land."

ART OF PRESERVING HEALTH.

LONDON:

JOHN CHURCHILL, PRINCES STREET, SOHO.

1851.

HUGHES AND CO., PRINTERS,
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1851

# DEDICATION.

TO THE RIGHT HONOURABLE

## THE EARL OF SHAFTESBURY,

AND

## TO DR. JOHN CONOLLY, M.D.

My Lord,

My Dear Sir,

Inadequate as I feel to the task of conveying to you my sense of obligation in being permitted the honour of dedicating this work to persons of your high position and distinguished merit, I feel doubly so, to express my admiration of *your immeasurable benevolence,* as portrayed not only in your public capacities in general, but more especially — the one in emanating, the other in carrying out the provisions of the law for the protection and kind consideration of those unfortunates of God's creatures whom it hath pleased him to afflict with the

direst of human maladies, the privation or prostration of the noblest of man's faculties—Reason.

That your labours have been of incalculable benefit to suffering humanity is too notorious to admit of either comment or eulogy from me.

That you both may live long in health, to see perfected "the good work begun" by you, and that you may enjoy the satisfaction of a well-earned reputation resulting therefrom, is the earnest wish of,

My Lord,

and

My dear Sir,

With the highest respect,

Your obedient,

Humble Servant,

THE AUTHOR.

# PREFACE.

FEELING it to be incumbent on every one to contribute to the good of his fellow-men, in as far as his experience enables him —

"Non sibi sed toti mundo se credere natum;"

and presuming on the practical knowledge gained during a sojourn of a quarter of a century in climes that are not the most hospitable, the Author has been induced to offer to the public the following pages, as his professional lucubrations on a subject deeply interesting to every community, — a subject both comprehensive and obscure, — comprehensive, inasmuch as it involves the consideration of a vast variety of disease under the appellation of Epidemic Pestilence, — "The offspring of inclement skies, and of legions of putrefying locusts," — and obscure, as regards the uncertainty which must ever appertain to all that relates to the phenomena of Life and Death.

The Author has endeavoured to place in fair review the various opinions of the most eminent historians (professional and otherwise), and would impress on his readers, that on a subject embracing so wide a field *as that of atmospheric influence, arising from elemental disturbance, together with the boundless variety in the circumstances of human society, as the exciting and predisposing cause of disease,* the present volume must be read and considered as a whole; for it is only by comparison of all the phenomena displayed in the following History of Pestilences, that any thing like just or rational conclusions can be arrived at,—conclusions such as the remarkable coincidences of the observations and comments by historians, not only of the earliest ages of the world, but those of more modern times, fully warrant.

It has been the Author's aim, by careful examination, to reconcile the discrepancies of historians as regards dates,—discrepancies evidently owing to the varying commencements of the year with different people or nations.

In conclusion,—however dogmatical the Author may appear to be to his readers in that which he has advanced as to the NATURE, CAUSES, &c. of epidemic pestilences, he begs to assure them that he has written

from honest conviction; and with that assurance he leaves the subject-matter in the hands of those capable of estimating his efforts in behalf of SANITY.*

Ὁ οἴδαμεν λαλοῦμεν, καὶ ὁ ἑωράκαμεν μαρτυροῦμεν.

"We teach that we do know, and testify that we have seen."

Wyke House, Brentford.

* Sanity is the opposite of insanity.

# HISTORY

OF

# EPIDEMIC PESTILENCES.

## CHAPTER I.

### FROM 1495 B. C. TO A. D. 540.

Πλείη μὲν γὰρ γαῖα κακῶν, πλείη δὲ θάλασσα·
Νοῦσοι δ' ἀνθρώποισιν ἐφ' ἡμέρῃ ἠδ' ἐπὶ νυκτὶ
Αὐτόματοι φοιτῶσι. HESIOD.

The earth 's full of maladies, and full the sea,
Which set upon us both by night and day.

IT is recorded that in the month Adar,—answering, according to our computation of time, to the period between the middle of February and March, the end of the Jewish year,—during the reign of Pharaoh IV., king of Egypt, in the year of the world 2509 (anno 1495 before the Christian era), and in the 80th year of the life of Moses, the sacred historian and great captain of the hosts of Israel, many awful prodigies in the natural world commenced, especially in commotions of the elements, which were succeeded by a pestilence destructive both to men and beasts in the low lands of Egypt. This terrible pestilence was preceded by fearful commotions of the elements,—hail, thunder and lightning, heat and drought, the generation of insects, &c.; for the summer had been hot, and attended with heavy cold nocturnal dews alternating with rains, after a humid winter. The weather had been very variable; the excessive heats and hot winds exhausted the inhabitants by day, and the cold damp dews chilled them by night: the atmosphere was so filled with

fiery elements, and clouds of dust and sand, that men and cattle were in imminent danger of suffocation, and were compelled to seek shelter from these dry storms and tempests. On the 10th, universal darkness prevailed, which continued for three days; and on the 14th, deadly pestilence commenced, which, in one sudden and universal destruction, swept away millions from the face of nature.

Anno 1471 B. C., by dire pestilence, the murmurers and mutineers in the company of Korah, Dathan, and Abiram were destroyed in the encampment at Kadesh, in the desert of Paran, to the number of 14,700 persons; and nineteen years after (1452 B. C.), by a similar pestilence, of the riotous and drunken worshippers of Baal-peor, 24,000 men and women perished.

In the year 1310 B. C., sixty years previous to the Trojan war, the island of Ægina was visited by an epidemic pestilence, which was fatal to great numbers.

Anno 1141 B. C., the people of Ashdod, a place lying on the sea-shore between Gaza and Joppa, which is called in the New Testament Azotus, were visited by an epidemic pestilence termed EMERODS—an affection of the bowels, or malignant dysentery.

In the time of David, 1017 B. C., there broke out a pestilence which in three days destroyed 70,000 persons. About the period of this infliction, the first dreadful epoch of Spanish epidemiology is recorded. The period, however, has been variously given; by some, it is fixed at 1100 B. C., while other writers mention it as having occurred during the great plague or dearth in Egypt. There were, without interruption, *twenty-five years* of drought in Spain; springs were dried up, rivers became fordable, their waters becoming almost stagnant; there was neither pasture for beasts nor fruit for man; so great was the barrenness of the land, that there was scarcely any green thing to be found, except some olive-trees on the banks of the Ebro and the Guadalquiver. Such, says the historian, was the melancholy state of our ancient Spain; "full of dreadful mortalities, plagues, and

miseries of every description, which, with emigration to other lands, nearly depopulated our country."

Plutarch mentions the occurrence of a great pestilence that happened in Rome in the year 790 B. C., soon after the murder of Tatius: it was so rapidly fatal that it is represented as killing almost instantaneously; cattle as well as men were swept away, and all nature appeared one desolate and abandoned waste: during this awful period it is said to have rained blood, or crimson insects which turned the waters to the colour of blood, as happened in Egypt during the reign of Pharaoh: the crops failed, and the country of Campania may be said to have been ravaged by the sword, famine, and pestilence. Plutarch also gives an account of an epidemic pestilence which afflicted the inhabitants of Italy, especially the capital of the empire, during the reign of Numa Pompilius, of Hezekiah over Judah, and of Sennacherib over Assyria in the year 710 B. C.: by this pestilence 185,000 of the Assyrian armies perished at the siege of Jerusalem, which compelled the assailants to raise the siege and to return to Nineveh, even after they had taken all the principal cities of Judah, including Libnah, a city situated about twelve miles south-west of Jerusalem. It was at this period that Numa Pompilius instituted the Salii, a college of priests of Mars, who carried the sacred shields in procession, to stop the pestilence.

Livy describes another pestilence which occurred at Rome during the reign of Tullus Hostilius, 694 B. C. Zosimus, an officer during the reign of Theodosius the Younger, speaks of the prevalence of a pestilence in the city of Rome during the reign of Tarquin, anno 671 B. C.; and Dionysius Halicarnassus, Murator, and Functius have also mentioned the occurrence of a great famine and pestilence in Rome, anno 545 B. C., which nearly depopulated Velitræ, an ancient town of Latium on the Appian Road, about twenty miles to the east of Rome. A murrain prevailed about this time among their cattle, which destroyed vast numbers, and such havoc was made among the inhabitants of Latium that

the Volsci were necessitated to apply to the Romans to repeople their cities. Rome also suffered the year subsequently, as did Campania, celebrated for its lake Avernus, which emitted such poisonous vapours that birds would not go near its banks: this pestilence spared neither age nor constitution, and yielded to no remedies. It appeared suddenly, destroyed its victims rapidly, and on the approach of continued cold weather disappeared as suddenly as it came.

Anno 594 B. C. There perished this year a third part of the inhabitants of Jerusalem by a severe pestilence.

Herodotus and Justin have recorded the destruction of the army of Xerxes, when retreating into Asia after his defeat at the battle of Salamis, by a grievous pestilence, which attacked both land and sea forces, especially the army under the command of General Mardonius, anno 480 B. C.: the victims were numbered at 150,000. During this period Diodorus Siculus writes that the ancient Spanish troops were the most faithful and courageous, and constituted almost always the strength of the Carthaginian armies: he continues,—They (the Carthaginians) took treasure and soldiers, who by their valour aided the republic in their most critical times of war. The Spanish soldiers endured hardship with indomitable courage, and, being naturally of a robust make, were not intimidated by the pestilence which destroyed others of the Carthaginian army of that time, nor by the 150,000 dead bodies—plague-victims, which without burial strewed the plains. All these circumstances did not prevent their appearing in arms, and demanding the capitulation of Syracuse from its first tyrant, whilst at the same time the other troops, shamefully abandoned by their chiefs, took to a precipitate flight, and surrendered at discretion. History says nothing of the means taken for the curing of this horrible pestilence at Syracuse, nor shows clearly why the Spaniards alone enjoyed an immunity from this pestilence, which was worthy of being perpetuated in history. Villalba however mentions some physical causes which he considers contributed to the remarkable exemption of the Spaniards from

the dire pestilence: he states that the ancient Spaniards were a sober race; and, according to all authorities, sobriety is a powerful means of protection against disease. Filarcus, a citizen of Athens, was singularly struck with this fact: among the rich who lived frugally, drank water alone, and were clothed with the richest garments, moderation and bodily cleanliness were observed to be of the highest importance in maintaining the sensible and insensible perspiration; these functions of secretion and of excretion being essential in order that the integral parts of the blood should preserve its purity, its weight, its normal state of electricity, and natural fluidity, upon which depend the preservation of health and the power of resisting disease in times of epidemics, as is affirmed by medical jurists, and as the ancient Spaniards practised. He continues,—Bathing is also an efficacious means of removing the impurities that opposed the sensible and insensible perspiration; and it would appear that in Spain, long before the Second Punic War, bathing was in general favour. The unmeaning sneer of Diodorus Siculus at the habit of the Spaniards of washing their entire bodies with urine, will be recollected, whilst Galen says that in Syria they avoid the plague by simply drinking that liquid excrement. That the Spaniards used urine advantageously as a topical lotion we shall find in the treatises on baths and other subjects of ancient Spain. Drs. Ribeiro and Sanchez assert, with some foundation, that the use of linen in Europe has caused pestilence to be less frequent; thus, as it were, contributing to the cleanliness which the ancients obtained by the use of their public baths. To a similar cause we may attribute the rarity with which the Spaniards were attacked by the aforesaid frightful pestilence. Catullus, Silius Italicus, and Gratius Faliscus eulogize the vapour baths of the ancient Sætabi: in fine, says Villalba, the sobriety, personal cleanliness, bathing in common water, washing with urine, vapour baths, and the wearing linen garments, with fortitude, concurred powerfully to the immunity enjoyed from disease by our Spanish ancestors.

Anno 476 B. C. During this and the succeeding years, says Florian de Ocampo, there prevailed in Spain from time to time a series of pestilences and other minor diseases, by which a multitude of persons perished. The Carthaginians, to appease the ire of the gods to whom they attributed these fatal visitations, offered up human sacrifices, and made incisions on their arms and legs, and on other parts of their bodies: they also immolated cattle of all kinds, according to the severity of the pestilence.

Orosius, another Spanish writer, and also Dionysius, relate the occurrence of a terrible plague at Rome, which caused great mortality, 463 B. C. This was a grievous time, says the historian, men and beasts being equally afflicted. The disease was preceded by great heat and drought, and the calamities and fatigues of war, which were greatly augmented by crowds of countrymen and herds of cattle received within the walls of the city, in order to avoid the ravages and plunderings of the Latins and Hernici, who then desolated the country. The epidemic first seized on horses and horned cattle, then on man, the poorer people being the chief victims: it began about the calends of September, and raged until the end of November. The two consuls Servilius and Æbutius, and many other illustrious Romans, fell victims to the disease.

Livy and Dionysius inform us that, anno 452 B. C., nearly one-half of the inhabitants of Rome were destroyed by the pestilence *loimikié*, which was also communicated to the Æqui, the Volsci, and the Sabines, and caused a great mortality amongst them. The distress and consternation being general, the land was left uncultivated, and the miseries of famine threatened to overwhelm those who survived the epidemic. This pestilence was succeeded by another, which, if possible, was more grievous; it lasted from 443 to 438 B. C. In time, so frequently had Rome been scourged by repeated epidemic pestilences, that Livy styled it "urbs assiduis exhausta funeribus."

In the second year of the Peloponnesian War, 435 B. C.,

epidemic pestilence broke out at Athens, where the inhabitants of the Athenian territory were crowded together into the city to avoid the ravages of the Lacedemonians: it destroyed 5000 of the prime of their armies, and an immense number of the poor, and continued without interruption for five years. It began towards the close of an open spring, after a severe winter, raged the four following summers and autumns, was especially fatal to their armies at the siege of Epidaurus and Potidea, and continued all through the severe winters. Thucydides, Lucretius, Anacharsis, Plutarch, and Hippocrates give an account of a similar pestilence which ravaged Persia about the same period. Artaxerxes, the king of Persia, sent for the great physician of Cos and Greece to come and arrest its progress, but Hippocrates nobly answered the Persian monarch in these words, addressing Hystaspes, prefect of the Hellespont: "To the epistle which you have sent, and you have asserted to come from the king, write to the king as I briefly answer,—We enjoy victuals, clothing, homes, and everything necessary for life in abundance; and it is neither right for me to use the wealth of the Persians, nor to liberate barbarians from diseases while they may be the enemies of Greece. Farewell." Thucydides describes the symptoms of the disease in a cursory manner; Lucretius more minutely; and from these historians we infer the following morbid phenomena. The invasion was sudden and unexpected; the disease commenced with a violent headache, fiery redness of the eyes, succeeded by pains and inflammation of the throat, difficulty of breathing, and offensive breath, a sneezing and hoarseness, violent fever with insatiable thirst supervening: watchfulness and delirium or stupor, vomiting of bilious matter, utter prostration of strength, and urgent flux of the bowels, were noticed in the second stage of the disease. In the first stage, the stools were dark and fœtid: there were hiccough, bleeding at the gums, throat, nose, stomach, and bowels,—convulsions: pustules or sores of a livid hue were also observed about the bodies of those affected. This bilious plague or pestilence of Athens ex-

hibited, from the foregoing accounts, symptoms analogous to those of the bilious remittent or yellow fever of America and the West Indies, and would appear to have arisen from similar causes.

The historian, in speaking of the calamity, brings the causes of the pestilence to our view. He says, "As they had no houses, but dwelt in booths all the summer season, where there was scarcely room to breathe, the pestilence destroyed with the greatest confusion, so that they lay together in heaps, the dying upon the dead, and the dead upon the dying: they were tumbling one over the other in the public streets, or lay expiring round every fountain, whither they had crept to assuage the intolerable thirst which was consuming them. The temples of which they had taken possession were full of the dead bodies of those who had expired there."

Anno 427 B. C. a cruel pestilence or plague spread almost through the world. Mariana and other Spanish writers say that it commenced in Egypt, and, travelling through all the intervening countries, reached Spain: the mortality in most places began among the cattle. From various accounts it would appear that the country people were first affected with this pestilence; afterwards the inhabitants in the towns. Anno 404 B.C. Carthage was almost depopulated, as recorded by Justin and Diodorus Siculus. The Carthaginians sent on an expedition under Himilco to reduce revolted Sicily to subjection, were destroyed in great numbers by pestilence; it was so fatal that, according to one writer, Ocampo, there did not escape either Mallorcan slingers, Celts, Andalusians, or Africans; many fell dead as soon as they took the disease. The bad policy of leaving their dead bodies unburied on the plains, a prey to dogs, &c., contributed in no small degree to the propagation and virulence of the epidemic. This pestilence was distinguished by the remarkable symptoms of violent dysentery, severe fever, acute pains in all parts of the body, anguish, and great depression of both mind and body. Similar disasters have attended expeditions and long

campaigns in warm climates within our own time, as our expeditions into Egypt, Flanders, Brabant, the West Indies, &c. testify.

Annis 393 and 383 B. C. the armies of Gaul and Rome were afflicted with sore pestilence. In the latter year, there were many months of severe drought in Andalusia and along the southern coasts, from the Pyrenees as far as Cape St. Vincent; great famine ensued, with pestilential diseases.

Rome was revisited by pestilence anno 366 B. C.: it raged dreadfully for three years, and swept away the great Camillus with multitudes of his people. When the disease was at its height, it is reported that 10,000 citizens died daily: it prevailed terribly in the months of September, October, and November, and the Sibylline books and Lectisternium were resorted to in vain. To add to their calamities and distress, the earth opened in the midst of Rome, giving rise to the tragical and superstitious decease of Marcus Curtius, by his throwing himself, for the salvation of the city, into the awful chasm on the site of which the lake Alba soon after arose.

Orosius in describing this pestilence says, "This was such a pestilence as generally proceeds from irregular seasons, extreme drought, heat of the spring, moisture in the summer and autumn;" which implies that irregular seasons inducing a pestilential constitution of the atmosphere, according to the doctrines of Hippocrates, who dictated medicine to all the world in those days, were productive of pestilence.

Anno 362 B. C. The war of Sicily being ended by the death of Dionysius the greater, the Republic of Carthage sent a captain named Bostan as the governor of Mallorca, Minorca, Iberia, and Formentera, in order that he should negociate with the Saguntians, and draw them over to their side.

The city of Saguntum, now called Murviedro, was visited by an epidemic pestilence. There was a great scarcity of provisions, and many deaths occurred, even among the nobles. The people became sorrow-stricken and disheartened, as reported by the magistrates to their new governor. It may

be inferred that the pestilence raged with severity, from its having affected the higher orders.

Annis 346 B. C. and 405 from the foundation of Rome, extraordinary inundations, with great damage to the cattle, fields, and buildings, occurred. All the cities along the coasts on the Mediterranean Sea suffered also from earthquakes; Saguntum, a principal city, having suffered the most. Annis 332, 296, and 291 B. C. Rome was again visited by pestilence, which was particularly fatal to breeding women and to breeding cattle. A similar visitation affected Rome anno 272 B. C.

Anno 237 B. C. the commotions of the elements in the shape of earthquakes, severe drought, with the want of sufficient food, caused great mortality among cattle and men in Spain, especially at Cadiz.

Anno 218 B. C. the toils of war and the forced marches of the Carthaginian armies on their route to besiege Saguntum, and the unflinching and brave defence by wearying out the assailants, (says Mariana,) caused great pestilence among them. There were also earthquakes and pestilence in several provinces of Spain, also great storms at sea, throwing on the land quantities of fish, some of which were unknown until this occurrence. There was also a fatal epizootic among the dogs and birds.

Anno 216 B. C. In the summer of this year a fatal pestilence began in the vicinity of Carthage. It was supposed that this putrid disease arose from the crowded state of all places, from the multitude of sailors and soldiers there at the time, the country being in a badly cultivated state, the scarcity and bad quality of provisions, and from the stagnant lake, which had always been viewed as a source of disease. For a considerable period it was limited to the place where it originated, but after a time other provinces became affected. Both rich and poor fell victims to this dire disease: some of the principal families suffered; and Hamilca, the wife of Hannibal, and their offspring, were among its numerous victims.

Anno 206 B. C. a vast pestilence, preceded by immense swarms of locusts, occurred in the land near Capua. The same historian, Livy, relates that the Roman and Rhodian fleets, anchored at Phaselis in the Gulf of Pamphylia in the midst of summer, and in an unwholesome situation, suffered from pestilential diseases,—especially the rowers, who were subjected to hard labour, and exposed to the burning rays of the sun. He continues, that violent pestilence ravaged all Italy annis 182 and 181 B. C. This continued for several years; severe drought for six months, and consequent dearth of corn happened, followed by terrible storms, pernicious seasons, and awful commotions of the elements, coldness, dampness, moisture and dryness, noxious vapours, and putrid exhalations. This extraordinary season was followed by a great pestilence among cattle and among the inhabitants of Rome, in the summer and autumn of the year 177 B. C. This pestilence continued for four years, from 177 to 173, during which period swarms of locusts deluged Apulia, as the Pontine provinces were covered the previous year. So destructive were their ravages, that Sicinius the prætor was commissioned with an army to drive them away!

"Pestilentia quæ priore anno ingruerat in boves, eo verteret in hominum morbos; qui inciderant haud facile septimum diem superabant: qui superaverant longinquo, maximæ quartanæ implacabantur, morbo. Servitia maxime moriebantur, eorum strages per omnes vias insepultorum erat. Ne liberorum quidem funeribus subficiebat. Cadavera intacta a canibus ac vulturibus tabes absumebat; satisque constabat, nec illo, nec priore anno in tanta strage boûm hominumque vulturiûm usquam visum." The translation of this pithy passage conveys that the pestilence which first attacked cattle, fastened upon men,—those who survived the seventh day did so with great difficulty, and were subsequently afflicted by disease (or fever) of a quartan form. The poor and lower classes were those who suffered most, their dead carcases lying about the highways,—dogs and vultures left the carcases untouched which were consumed

by corruption,—neither in this nor in a former year was there a vulture seen. From this graphic detail we may infer that the beasts of the field were first attacked, then mankind; that the disease underwent a sort of crisis on the seventh day, terminating either in death or chronic distemper, as we see to be the case in our own days; viz. consumption, dropsy, diseases of the liver and spleen, and ague;—that it was most fatal among the lower orders, who are generally more distressed in times of scarcity, and from other causes more susceptible of disease, such as cold, damp abodes, and poor diet;—that carnivorous animals were sick themselves, refusing to touch the carrion carcases; in fact, the infected provinces were entirely deserted by vultures;—lastly, that the malady was similar to our yellow, bilious, remittent fever, in all its symptoms, as we see it occurring amongst us in various places—the West Indies, America, &c.

Orosius gives us an account of another pestilence, which devastated Rome, anno 144 B. C.

In the year 140 before the Christian era, the war of Viriathus having been concluded, the proconsul Q. Pompeius Rufus commenced blockading Numantia (now Algeria). The plan of his operations being to charge the air with mephitic vapours, he determined on turning the course of the river Douro, and inundating the country round about by means of its waters, which would have the effect not only of spoiling the atmosphere by its moist exhalations, but of inducing famine also, by the destruction of all vegetation. These attempts were, however, fruitless, inasmuch as the Numantians, being a robust and warlike people, resisted the consequences of the proconsul's attempts against them. Having foreseen his intentions, they had supplied themselves with abundant provisions, which they had intercepted from the Roman legions; while, on the other hand, the Roman soldiers themselves fell victims to their own measures, pestilence having broken out among them—a malignant dysentery, equal in severity and fatality to that which formerly had laid waste the army of Lucullus.

After this period to about that of 134 B. C., Scipio Æmilianus, called the Numantine, organized his army, and having established admirable rules of hygiene and semeiotics, whereby he preserved his former strength and health, began to devastate the plains of Numantia, of Vacca, and Palestine. The want of water which was experienced in the latter place (Palestine) forced them to make wells to obtain drinkable water, but unfortunately the water thus obtained proved to be of a character productive of a malignant epizootic, which destroyed their horses and other beasts of burthen: the pestilence among their cattle increasing, obliged them to change their quarters to the plains of Numantia in order to winter there.

Anno 130 B. C. The famous Numantines, so much dreaded by the Romans on account of their valorous resistance, were not less feared by the Greeks, than the horrible pestilence which prevailed in Numantia. The Greek, Appianus Alexandrinus, speaks of them with admiration and dread. The Numantine people, who had hitherto resisted the corrupted condition of the air, ultimately suffered such exhaustion for want of food, their stores having been consumed, that after having subsisted on dressed skins of animals for several days, they fell into the frightful necessity of becoming anthropophagi, so that from feeding on the bodies of those who fell defending their country, pestilence arose, which hastened the downfall of their city.

Anno 126 B. C. Epidemic pestilence prevailed with great mortality in Africa. Orosius, Justin, and Livy, who have described it, attribute this pestilence to the stench arising from the putrid carcases of dead locusts, which were brought over by a strong east wind in such multitudes that they devoured every green thing, even to the bark of trees; they were subsequently driven by a south wind into the Mediterranean, and being again washed on shore in the warm season of the year, putrefied, and produced this awful pestilence, which destroyed 800,000 in Numidia alone. On the sea-coast of Carthage 200,000 perished. Of such terrible

visitations by insects, which to this day exist in the East at particular seasons, carrying destruction in their course, Lord Carnarvon gives a description in his 'History of Portugal and Gallicia.' It will convey a pretty good idea of their destructiveness and of the distressing consequences. Speaking of natural exhibitions, of which he was an eye-witness in Africa, he writes thus: "A fall of locusts is beyond description the most awful imaginable—a most dreadful scourge, which is considered in eastern and northern countries the most unfailing manifestation of the wrath of God. Travelling along the western coast of Africa, I once beheld this terrible infliction. These creatures fell in thousands and tens of thousands around us and upon us along the sands on which we were riding, and on the sea that was beating at our feet; yet we were removed from their most oppressive influence; for, a few hundred yards to our right, darkening the air, the great innumerable host came on, slowly and steadily advancing in a direct line and in a mighty moving column. The fall of locusts from this central column was so great, that when a cow directly under the line of flight, attempting ineffectually to graze in the field, approached her mouth to the grass, there rose immediately so dense a swarm, that her head was for the moment almost concealed from sight, and as she moved along, bewildered by this worse than Egyptian plague, clouds of locusts rose up from under her feet, visible even at a distance, as clouds of dust when set in motion by the wind on a stormy day. At the extremity of the field I saw the husbandmen bending over their staffs, and gazing with hopeless eyes upon that host of death which swept like a destroying angel over the land, and consigned to ruin all the prospects of the year; for wherever that column winged its flight, beneath its withering influence the golden glories of the harvest perished, and the leafy honours of the forest disappeared. There stood those ruined men silent and motionless, overwhelmed with the magnitude of their calamity, yet conscious of their utter inability to control it, while further on, where some woodland lay in the immediate line of the

advancing column, heath set on fire, and trees kindling into a blaze, testified the general horror of a visitation which the ill-fated inhabitants endeavoured to avert by such a frightful remedy. They believed that the smoke arising from the burning forest, ascending into the air, would impede the direct march of the column, throw it into confusion, and drive the locusts out to sea, and thus deliver the country from their desolating presence."

During the civil wars which were excited by Sylla and Marius, the Roman armies lost 10,000 men by plague in the year 89 B. C.

Anno 60 B. C. Spain, according to the opinion of several ancient and modern writers, both foreign and national, was one of the countries most subjected to the frightful disease of leprosy. Sauvages has asserted that there were no lepers in France, save those that came from Spain and America. Senertus states that in Spain and Africa elephantiasis (leprosy) is more frequent than in any other part of the world. Dr. Casal coincides in this opinion, as may be seen in his 'Natural and Medical History of the Principality of the Asturias;' and, finally, the Academic Memoirs of Seville speak of its existence in those countries, as owing to their communication with the Arabs and Jews, without denying, however, that the prevalence of the disease may have been influenced by the peculiar constitution of Spain. Accordingly its dry and burning temperature has contributed considerably, as it would appear, to locate this terrible disease, especially in the kingdom of Andalusia, and in the principality of the Asturias. The use of pork and other salted provisions, so commonly employed as articles of diet in ancient Spain, is supposed to have acted powerfully in perpetuating the disease, inasmuch as the opinions of Ubilis and other physicians go to show that these sorts of aliment are powerful generators of the malady. The first appearance of leprosy in Spain coincides with its introduction into Italy, after having been prevalent in the army of Pompey the Great about sixty years, more or less, before the coming of Christ. The sons of the

celebrated general proceeded with the army of their father from Italy to Spain, to stem the invasion of Cæsar, and this was in all probability the cause of its first introduction into that country,—at least, it is so considered by some writers.

Anno 49 B. C. The continued heavy rains and tempestuous seasons, the like of which had never been seen by the oldest inhabitants, caused frightful inundations of the rivers Cinca and Segre. Epidemic pestilence, peculiar to an atmosphere surcharged with moisture and poisonous exhalations, appeared immediately after. The shepherds were obliged to withdraw their flocks in order to save them from the waters, which, together with the increased price of corn and of other food amongst the neighbouring populace, multiplied the misfortunes of the army of Julius Cæsar, who had not only to combat against the bravery of the Pompeians, but also against the trials of famine and pestilence. Their distress would have been greater and more lamentable, had not some of the neighbouring tribes, who had recently become their allies, succoured them with the necessaries of life, which were sent in under the escort of 500 Ilecaones, a tribe who occupied the banks of the Ebro.

In the time of Mark Antony, anno 30 B. C., a pestilence of so general a character prevailed, that it seems to have spread over the whole world. Dion Cassius mentions this pestilence, which continued for five years, destroying vast numbers of the inhabitants of Jerusalem: it was also very destructive at Rome and in Palestine. The celebrated triumvir died about this period of the pestilence, as mentioned by Nuestro Alonso of Freylas in his 'History of Pestilences.'

The next account of epidemic pestilence we have, is given by Tacitus, who relates that in the East, in Asia Minor, fourteen years after the commencement of the Christian era, pestilence prevailed; a severe earthquake about this time was experienced; a comet is also mentioned as having been seen, whose tail, it is said, with one fell swoop hurled down a dozen cities at once. Another pestilence is recorded by

Suetonius as having raged with great mortality at Babylon: it caused a multitude of Jews to remove to Seleucia. This year was marked by great famine, in fulfilment of the prophecy of Agabus (Acts xi. 28). During the reign of Claudius Cæsar, at this period, pestilence was rife in Greece and Italy.

Pliny and Tacitus both give an account of those periods of mortality from the year of our Lord 40 to 53 and 54, when most of the officers of Rome died of pestilential disease: "ex omnium magistratuum genere plerique mortem obierunt." It was during the year 40 that the great eruption of Etna occurred, which frightened Caligula from Sicily. Dire famine was also experienced, which, with pestilence, extended from Italy almost to India. Babylon was almost depopulated about this period.—A. D. 88, pestilence carried off 30,000 of the people of Rome. Tacitus gives an affecting account of the ravages of this plague. The houses were filled with dead bodies, and the streets with funerals; neither age, sex, nor condition were exempted from it; slaves and plebeians were suddenly carried off by it amidst the lamentations of their wives and their children, who were also seized with the disease while administering to the sick and mourning over the lifeless bodies of the dead. Pliny, Orosius, and other writers describe this pestilential period as exceedingly fatal. Earthquakes, eruptions of volcanoes emitting sulphureous vapours, inundations, tempestuous seasons, and other awful commotions of nature, characterized this period all over the inhabited globe. In June, a comet appeared; on the 1st of November following, a tremendous ebullition of burning lava issued from the crater of Vesuvius, deluging the country, and Herculaneum and Pompeii sunk in a moment: these cities, with their inhabitants, were buried in one universal mass. Thunder and lightning pierced the heavens, and the ashes and smoke from the burning gulf discharged into the air were wafted to Rome, Syria, and Africa, the inhabitants whereof trembled lest the world should be destroyed or turned into chaos; the fish in the neighbour-

ing seas were killed. These calamities were preceded by a long drought in Italy during the summer; and in the autumn of A. D. 80 a terrible pestilence broke out in Rome, and destroyed for some time 10,000 citizens daily. Eight years after, A. D. 88, an epidemic pestilence appeared in the north of England, and continued for some time; in 92, it carried off 150,000 persons in Scotland.

Philo, the Jewish philosopher, gives a description of a 'loimic' pestilence which occurred during that century, and appositely conveys the mode of diffusion and the circumstances of the confluent small-pox. He says, "The clouds of dust suddenly falling on men and cattle produced over the whole skin a severe and intractable ulceration; the body immediately became tumid with efflorescences (ἐξανθήσεσιν) or purulent phlyctenæ, which appeared like blisters excited by a secret fire beneath. Men necessarily undergoing much pain and universal soreness from ulceration and inflammation (φλογώσεως) suffered not less in body than in mind by the severe affliction, for a continuous ulcer was observable from head to foot." These observations of Philo are intended as a comment on Exodus, ch. ix. v. 9: it shall be "a boil breaking forth with blains." He finishes by observing, that it should rank among pestilential diseases (ἐν τοῖς λοιμώδεσι νόσοις), or as the infliction of a tainted atmosphere (πληγὴ ἀπ' ἀέρος καὶ οὐρανοῦ). From a passage in Dion Cassius' Roman History, it would appear that some mode of inoculation had been attempted in the reign of Domitian, A. D. 92, and revived in that of Commodus.

A. D. 110, a severe earthquake was felt in Shropshire, in England. Four years after, 114, a similar shock, but more extensive, was experienced in China, which caused the destruction of much property and of many lives. During the same period a pestilence prevailed in Wales, which carried off 45,000 of its inhabitants, after a hot summer and an inclement autumn. In fact, in those days there frequently happened great inundations, especially of the river Severn: at one time immense numbers were drowned in their beds,

when 5000 head of cattle were destroyed. A. D. 115, a tremendous earthquake laid waste the city of Antioch. Five years after, A. D. 120, Nicomedia and several neighbouring cities were swallowed up; and, A. D. 128, Cæsarea and Necropolis met with a similar fate from a severe earthquake.

A. D. 133, a great drought existed in England, and the Thames was almost dried up. This condition of the seasons was followed by pestilence; and thirteen years after, Scotland was visited with an epidemic, to the great destruction of its inhabitants.

Arabia was ravaged by pestilence in the year of our Lord 158. The disease appeared in Rome during the reign of Marcus Aurelius Antoninus and Lucius Verus, preceded by a more destructive plague in Asia, which the great Ammianus Marcellinus, the philosophic hero, asserted arose from the foul air of a small box which a Roman soldier had opened at the capture of Seleucia. This opinion was in accordance with the superstition of the times. At that period the elements were greatly deranged: commotions of the physical world, inundations of rivers, agitations of the earth, devastations from locusts, caterpillars, and every variety of the insect tribe, famine, putrid vapours, with great inclemencies and irregularities of the seasons, foretold the approach of the awful pestilence which in the same year desolated Rome: its symptoms were, a burning fever and gangrene of the extremities, particularly of the feet. These times were also distinguished by wars and rumours of wars: 450,000 Romans were butchered in Syria and in Cyprus by the Jews. Fourteen cities were destroyed by earthquakes, amongst which was Antioch, with 100,000 inhabitants: 580,000 were supposed altogether to have perished by the sword, famine, and pestilence.

Aurelius Victor, speaking of the emperor M. Antoninus, gives a lucid description of those calamitous times. He says, "Unless he had been born for these times, all the affairs of the Roman empire would have been ruined assuredly as if by one fall; for there was rest no where from arms, and

wars burned through all the East, Illyricum, Italy, and Gaul. The motions of the earth, with annihilation of cities, inundation of the rivers, thick pestilences, species of locusts infested the fields; indeed, nothing can be said or conceived, by which mortals used to be wasted with the severest agonies, which have not raged during his administration."

A. D. 173, there was a severe winter, and consequently a famine in England; a pestilence broke out the summer following, and continued to the autumn and subsequent winter. In this year, as also in 175 and 178, Rome was visited by epidemic pestilence, which committed great ravages among the soldiery. Five years after, it was again afflicted with disease; and in A. D. 195, plague prevailed in all Italy. "A great pestilence," says the historian, "raged in all Italy, and became most violent in Rome by reason of the great concourse of people assembled from all quarters of the world. The emperor, by the advice of his physicians, retired to Laurentum, a cool place beautifully shaded with laurels, on the supposition that the sweet smell of those plants counteracted contagion. The people of the city were also advised by the physicians to fill their noses and ears with sweet-smelling ointments, and to use perfumes, in order to prevent the action of human effluvia and of the contagious air. These precautions, however, as might have been expected, proved of little avail: the distemper proceeded unchecked, and men and cattle continued to perish therefrom in multitudes. Five thousand died daily in Rome for a considerable time, and famine with pestilence persisted for three years." (See Herodian, Dion Cassius, &c.)

A. D. 203, there was an eruption of Mount Vesuvius.

In the year 211, a plague, preceded by an earthquake and a great inundation of the river Trent, appeared in the British Isles. A. D. 218, the river Tweed overflowed; and dire pestilence followed four years after, destroying 100,000 lives in Scotland.

Mortal pestilence affected the whole world A. D. 250. Italy, Ethiopia, Egypt, Asia, France, Spain, and various

other parts suffered great ravages from disease. "For twelve years subsequently," says Zosimus, "a pestilential fever followed the Scythians, and devoured the scanty remains of the human race." "Pestilence has contaminated the face of the earth," says Jornandes, a learned historian.

A.D. 252, Alexandria and other districts suffered from epidemic pestilence, which continued its ravages with great fury for twelve or fifteen years. This pestilence was not, however, one uniform disorder, but was comprised of several different kinds, such as dysentery, ignis sacer, or scurvy, typhomania, remittent fevers, &c. According to Cedrenus, there were at the time singular exhalations and dews, which resembled the ichors of dead bodies: "hence," he says, "constant loimoi, with other severe and unmanageable disorders (*βαρέα καὶ ἀνίατα νοσήματα*), which destroyed multitudes of the people."

A.D. 262. During the reign of Gallienus 5000 citizens of Rome perished daily. Cyprian, a bishop of Carthage, a man of erudition (see reprint, Fell, fol. Oxon. Amst. 1700), in detailing the symptoms of this horrific pestilence, thus writes: "The symptoms were, a dejection of spirits, exhaustion of strength, incessant involuntary evacuations, violent fever of the bowels, with destruction of the sight, hearing, and feeling." Aurelius Victor asserts of this pestilence, that it spread rapidly all over Rome, and arose from heavy cares and depression of mind, as well as from a pestiferous state of the atmosphere. We may here recognize all the terrible symptoms of that devastating disease Cholera, which, beginning in the year 1817, ravaged the four quarters of the globe, and continued for a series of years. Several earthquakes were experienced this year in Europe, Asia, and Africa, with three days' darkness. A.D. 272, there was another eruption of Vesuvius.

A.D. 292, pestilence and famine prevailed in England and Wales; it also raged with great intensity in those places, A.D. 310, carrying off, in the latter, 40,000 persons.

A. D. 302, epidemic pestilence (*loimos*), preceded by

famine, broke out in Syria. The account of this pestilential disorder by George Cedrenus appears to be similar to that by Eusebius; he says: "At this time almost every evil that can be enumerated fell upon men — famine, loimos, and drought, with misfortune of a certain disorder; it was an ulcer, the denomination of which was answerable to its affinity with the fiery anthrax, spreading over the whole body: it proved highly dangerous in all respects to the persons affected, but by a particular determination to the eyes in most cases, it produced blindness in thousands of men, women, and children." Nicephorus says of this disease— "It originated in famine, and was called anthrax; it was an ulceration attracting or draining out humours, with an intolerable stench, which, in spreading over the bodies, extended to and affected with violence the eyelids (*καν θοὶ*), and occasioned blindness both in males and females." We are further informed by Eusebius and Cedrenus that the army of Gallienus, in Armenia, was affected with pestilence, which extended to every city in the eastern provinces, and even to villages and lone houses. The great mortality among the poor was attributable more to famine than to the disease; they were obliged to eat hay, grass, roots, &c. The rich, however, were not exempt from this pestilence, but were also carried off in great numbers. The emperor Diocletian, according to Cedrenus, died of the malady: "he was affected with severe pains over the whole body,— a violent phlogosis preyed upon his inward parts, and his flesh melted like wax. In the progress of the complaint, he became totally blind; his throat and tongue putrefied, so that worms came from his mouth, and he emitted an odour not less offensive than that of dead bodies in the sepulchres." This malady was evidently confluent small-pox.

A.D. 325, epidemic pestilence, preceded by famine, prevailed all over Britain, and in many other parts of the world. During the years 336, 355, 358, 362, 367, 368, and 375, deadly disease, with famine and earthquakes, were again experienced in the British Isles. In Wales alone, in the latter

year, 43,000 persons died from pestilence. A terrible earthquake was felt in Macedonia, and 150 cities were swallowed up in Asia and Greece. Ammianus Marcellinus mentions a plague which broke out in Amida, a city of Persia, during its siege by Sapor, which was attributed to the distresses of war, and to the corruption of unburied bodies lying about in the streets, plains, &c.

A.D. 361, there was a terrible famine in Italy. Four years after, 365, severe shocks of an earthquake, with inundations round the Mediterranean, did much damage. 50,000 persons were drowned at Alexandria in the month of July. Italy and Syria suffered from plague, which continued until 394. An inundation of the Nile nearly destroyed the cities of Alexandria and Libya; and rain, storms, and drought were experienced in Judea, which was also visited by immense swarms of locusts. These phenomena were succeeded by dire pestilence. There were several earthquakes at intervals between the months of September and November, which destroyed many places in Europe. During the years 400, 407, 417, and 419, pestilence desolated Asia, Africa, and Europe; a severe earthquake shook Cibyra, and destroyed many villages in its neighbourhood: in 419, an earthquake swallowed up several cities in Palestine. A.D. 442, pestilence swept away great numbers in England this year. A. D. 446, on the 17th of September, at Constantinople, a severe earthquake, attended with fire, pestilence, and famine, caused great misery. The walls of the town with seventeen towers were thrown down. A. D. 458, an earthquake destroyed nearly all Antioch on the 14th of September. Pestilence, about the same period, again broke out in England, and in various other regions, as related by Echard. The Greek ecclesiastical historian Nicephorus, and other writers, state that it prevailed more remarkably in Cappadocia, Galatia, and Phrygia. Isodorus tells us that so great were the famine and disease in Spain, in A. D. 443, that men fed with fury upon each other.

From the year 450 until 467, pestilence raged in Rome;

it revisited the city A.D. 473. The year previously, 472, on the 11th of November, at noon, there occurred an eruption of Vesuvius, which ejected flames that were seen at Constantinople, obscured the sun at noon day, and ravaged all Campania: there were ashes four inches deep on the tops of houses many miles distant. A.D. 480, a severe earthquake was experienced at Constantinople, which lasted forty days, causing much destruction of life and property. Epidemic pestilence infested Scotland; and Asia and Africa were nearly depopulated by epidemic disease.

A.D. 502, Scotland was visited by epidemic disease, which destroyed both men and beasts. A.D. 512, there was an eruption of Vesuvius. A.D. 517, Palestine suffered from pestilence, as did the inhabitants of Wales ten years after, in 527. The year previous, 526, Antioch with several other cities was nearly destroyed by an earthquake; it also suffered from a similar visitation two years after, 528, when 4800 of its inhabitants were buried in its ruins.

A.D. 540, so dire a famine was experienced in Italy, that parents were reduced to the cruel necessity of eating their children. About the same period, during the reign of Justinian, a destructive pestilence ravaged the greater part of Europe and Asia for more than half a century. It was at first observed to be plague in its usual form only, attended with tumours in the groin or axillæ, or behind the ears; but in its progress it was found to consist of various disorders, corresponding, in their leading features, according to the description by Evagrius, to "the true pestilence." These disorders consisted of pestilential or scarlet sore throat, and dysentery, with small-pox and measles. This fatal epidemic is shown to have continued in Asia until the year 590. Some authors have computed the number destroyed during this pestilential period at two millions.

## CHAPTER II.

### FROM A. D. 543 TO 1330.

A. D. 543, there was a terrible famine, during which, Procopius says, 50,000 labourers died of hunger in the narrow region of Picenum, and a still greater number in the southern provinces. In one place, seventeen travellers were lodged; they were murdered and eaten: two women who were detected in the commission of this atrocious crime were slain. Earthquakes were experienced all over the world. In 544, dysentery, which continued until 548, similating in severity the true plague, committed great ravages in France.

A. D. 552, a severe earthquake was experienced at Constantinople, doing much damage. Nine years after, 561, a similar shock was felt at Rome, and also at Constantinople. The year following there was so great a frost that the Danube was frozen over.

France, Germany, Italy, and various other countries of Europe,—in fact, the whole inhabited globe,—suffered awfully from pestilence in the years of our Lord 565-66, 583, 587, 589-90-91, 596 to 610: in the course of 580, Antioch was again shaken by a severe earthquake. There prevailed during this period, in the year 589, in Spain, writes St. Gregory, bishop of Tours, a very singular pestilence, the principal symptoms of which were pimples, or pustules, with buboes in the groins: such great havoc did it make, that the houses were as so many tombs, and the town as one vast cemetery: it was supposed that this disease was brought from Marseilles in a vessel, as it had raged there the year previously. St. Gregory, in his 'History of the Franks,' also gives these particulars of this pestilential period: "In the fifth year of

the reign of king Childebert (A.D. 580), great floods, tempests, earthquakes, hail, and several prodigies, were succeeded by a dreadful plague; for almost every district of France was occupied by a dysentery, in which the patients were affected with violent vomitings, fever, headache, and excruciating pains in the loins: what they discharged from their mouths was green or yellowish." This epidemic was particularly fatal to infants and children: "Parvulos adolescentes arripuit letoque subegit: perdidimus dulces et charos nobis infantulos," &c. King Childebert recovered with difficulty, but he lost his two sons. Austrigilda, queen of Orleans, sunk under the disease; she retained to the last the ferocious and vindictive spirit of the times, having exacted a promise from the king Gunthran that her two physicians should be put to death if they did not save her; soon after she expired, both of them were stabbed by the king's order. The Count d'Angoulême also died of the pestilence; the corpse appeared black and charred, as if it had been laid over coals of fire.

Paulus Diaconus describes the Ligurian pestilence which raged during this period, A.D. 566, in the time of Narses: "Cœperunt nasci inguinibus hominum vel in aliis delicatioribus locis glandulæ in modum nucis seu dactyli, quas mox sequebatur febrium intolerabilis æstus, ita in triduo homo extingueretur: sin vero aliquis triduum transegisset, habebat spem vivendi. Erat autem ubique luctus, ubique lacrymæ," &c. He concludes with the following passages: "Nulla vox in rure, nullus pastorum sibilus, nullæ insidiæ bestiarum in pecudibus, nulla damna in dominos volucribus. Sata transgressa metendi tempus, intacta expectabant messorem: vinea amissis foliis, radiantibus uvis, illæsa manebat. Nulla erant vestigia commeantium; nullus cernebatur percussor, et tamen visum oculorum superabant cadavera mortuorum. Pastoralia loca versa fuerunt in sepulturam hominum, et habitacula humana facta fuerunt confugia bestiarum."

Procopius, a Greek historian of Cæsarea, secretary to Belisarius, a general during the reign of Justinian, records some important facts of this pestilence, which ravaged the whole

world; it lasted four months at Constantinople, and, when at its height, it is supposed that 10,000 perished daily in that city. Nicephorus also describes this pestilential period, and remarks that "certain little marks appeared on the doors and outside of their houses, on their garments, and on their utensils; some white crusts of a peculiar deposition from the air adhered to all things, as damp moulds do on the walls or dwellings, and dew on grass."

In the year 590, at Rome, in the time of Pope Pelagius the Second, there was a horribly destructive pestilence prevalent, and also in Spain. The air was observed to be impregnated with a kind of mist and fœtidness, which by irritation induced a sneezing; hence the custom of saluting a person sneezing with the expression "Dominus tecum," or some similar expression, a practice which has reached our time. The year following, 591, Britain suffered from a severe pestilence, also Turenne, and the provinces of Arragon and Vivares. This disease was called *inguinaria*, because buboes were formed more particularly in the groin. In the year 610, pestilential small-pox committed great ravages at Mecca.

A. D. 614, epidemic elephantiasis prevailed in Italy, and three years subsequently, an epidemic pestilence, resembling the true plague.

In Syria, Arabia, &c., a great pestilence prevailed A. D. 639 and 640.

A. D. 654, Constantinople was devastated by a severe pestilence.

In the year of our Lord 664, a sudden pestilence (mancyalm), after depopulating the southern coasts of Britain, infected the provinces of the Northumbrians, and, spreading for a long time in every direction, destroyed great numbers. The year following, 665, it reached Italy, causing great destruction of life. Fordum (Scriptores, xv. vol. iii. page 646) cites a Greek historian to the effect that dire mortality prevailed, A. D. 669, all over Europe, which did not spare the remotest islands, Great Britain and Ireland. England also suffered greatly, A. D. 672, from pestilence, at which period

universal disease appeared in Syria and Mesopotamia. England and Ireland were revisited by pestilence, A. D. 679, beginning in the month of July, and continuing until the end of September. Rome suffered from similar ravages the following year, and in A. D. 683, England again suffered from severe epidemic disease, which lasted three years. A. D. 685, Syria and Libya were laid waste by disease. Ireland suffered from a severe epidemic the same year.

From a singular portion of history which has been preserved in the records of the church of Mayo, we find that the 'ignis sacer,' or pestilence originating from famine, was similar to and contemporary with the pestilence 'man-cyalm,' which raged among the British after the departure of the Romans from Britain (664).

According to the records, two kings of Erin summoned the principal clergy and laity to a council at Temora, in consequence of a general dearth, the land not being sufficient to support the increasing population. The chiefs (majores populi) decreed that a fast should be observed both by clergy and laity, so that they might with one accord *solicit God in prayer to remove by some species of pestilence the burthensome multitudes of the inferior people,* and thus enable the residue to subsist more commodiously. "Omnes majores petebant ut nimia multitudo vulgi per infirmitatem aliquam tolleretur, quia numerositas populi erat occasio famis." St. Gerald and his associates suggested that it would be more conformable to the Divine Nature, and not more difficult, to multiply the fruits of the earth, than to destroy its inhabitants. An amendment was accordingly moved, "to supplicate the Almighty not to reduce the number of the men till it answered the quantity of corn usually produced, but to increase the produce of the land, so that it might satisfy the wants of the people." However, the nobles and clergy, headed by St. Fechin, bore down the opposition, and called for a pestilence on the lower orders of the people. According to the records, God's judgment immediately fell upon the wicked authors of the petition. The two kings

who had summoned the convention with St. Fechin, the kings of Ulster and Munster, and a third of the nobles concerned, were cut off by the pestilence—'Budhe connail,' which was by some called 'pestis flava,' by others 'infirmitas icteritia.'

A. D. 685, there happened an eruption of Vesuvius.

In the year of our Lord 690, rains deluged Italy: six years after, 696, pestilence prevailed in Constantinople, and during the years 703 and 713, Scotland also suffered from epidemic pestilence. Small-pox caused great mortality in Spain, A. D. 714.

A. D. 717, 30,000 persons were carried off at Constantinople by pestilence: it again appeared in the years 724 and 729. In the year 732 great numbers perished from pestilential disease at Norwich in England, and also in Syria.

A. D. 740, the world was again visited by dismal pestilence, which continued, with varied intensity, for 260 years, until the year 1000. During this period, 749, an earthquake destroyed many cities in Syria. Among the many writers on the subject, Baronius, P. Diaconus, Cedrenus, and Magdenburgh, make mention of an epidemic pestilence which raged in Calabria, in Naples, also in Constantinople; in which latter place the mortality was so great, that the living were unable to bury their dead, cart-loads being huddled together into a vast common excavation of the earth, while great numbers were left unburied. Short mentions the prevalence of a fatal pestilence in Wales, A. D. 762, which afterwards extended all over England, continuing until 771. In Chichester alone it is stated that 34,000 persons perished. Pestilence raged in France A. D. 779, and invaded Scotland 784. Lancisius and Bartianus in their Annals relate the occurrence of disease in various parts of the world, which destroyed immense numbers of cattle, especially in Germany, where the mortality was great among the horned tribe. A. D. 801, St. Paul's at Rome was thrown down in the month of April; and in France, Germany, and in various parts of Italy also, a severe earthquake was experienced. So intensely cold was it in

A. D. 806, that the Rhone was frozen over: the cold was from 18 to 20 degrees centigrade below zero. Lancisius and Bartianus also give an account of a pestilence that arose from excessive rains and cold damp weather, A. D. 817 and 820, and prevailed through all the dominions of Gaul. The crops failed from excess of moisture, and famine ensued. The following winter was very severe: the Rhine and the Danube continued one solid body of ice for *thirty days*, and epidemic pestilence ensued in the spring, which persisted all the summer and autumn. The succeeding winter, in 822, was very severe: the snow lay on the ground twenty-nine weeks, and caused great destruction to both men and beasts. A long drought followed in the summer, and pestilence was the consequence: it was attended with such fatality, that, A. D. 825, it killed almost all the inhabitants in France and Germany.

In the year 853, epidemic pestilence broke out in Scotland: two years after, earthquakes and violent tempests were experienced; and in A. D. 856 there occurred an earthquake and a tremendous inundation of the Tiber, which were succeeded by severe epidemic sore throats, anginas, &c., as recorded by Baronius, Murator, Short, and Magdenburgh. A. D. 859, the Mediterranean was so frozen over, that carriages were driven on the Adriatic Sea. In 863, epidemic pestilence ravaged Scotland; and in the year 874, myriads of grasshoppers or locusts, of an immense size, with six feet and two teeth as hard as flint, overspread Gaul. They devoured every green thing, and were afterwards driven into the British Channel by a strong east wind; their dead bodies were washed on shore, where they putrefied, and therefore were supposed to have caused the epidemic pestilence, which destroyed a third part of the maritime inhabitants of Gaul. In 883, famine and pestilence afflicted Italy, and the year following, pestilential disease raged at Oxford, which also affected the cattle, destroying great numbers. Soon after this period, when Alfred the Great had just finished the rebuilding of London, which had been burnt and destroyed

by the Danes, a plague occurred which raged throughout the land for three years, carrying off many great men and ministers of state, as well as others. About the same time, A. D. 896, a mortal famine and pestilence, from intemperate seasons, happened in Gaul, Germany, Italy, and various other places in Europe. The frost, twelve years afterwards, A. D. 908, was so severe, that most of the rivers in England were frozen over. A. D. 912, a great part of London was again destroyed by fire. A. D. 922, a pestilential fever was prevalent, and very fatal in Scotland.

A. D. 929, the winter was severe. The Thames was frozen over for thirteen weeks: a dreadful famine and disease followed; and in 937, pestilence arising from great heat and long drought again raged for some time in England.

A. D. 940, epidemic pestilence of severe character appeared in the north of Europe amongst the cattle, being fatal to numbers. This murrain amongst the cattle was followed by disease in man, from which in Scotland alone 40,000 persons perished. In the year 964, the emperor Otho's army was almost entirely destroyed by pestilence. A malignant fever or plague prevailed in London in 965, and a grievous famine happened, in 976, in London, and also in Italy. In the year 981, great mortality prevailed amongst the Lacedemonians; and six years after, 987, England suffered from malignant fevers, which destroyed many of its inhabitants, whilst a sort of flux caused great mortality among the cattle. A. D. 993, there was an eruption of Vesuvius. In 997, burning fevers and agues were fatal in England; and in the year 1005, pestilence, in the shape of the true plague, began and continued for three years in various parts of the globe, more than half the human race perishing therefrom. Thousands died from famine in Italy. A. D. 1007, another eruption of Vesuvius.

Notwithstanding the great length of the pestilential period (260 years) just noticed, in A. D. 1009, the earth became deluged with rains and pestilence, which began among the Saxons. In the years 1012, 1019, 1020, 1021, and 1024,

dreadful pestilential seasons followed. A. D. 1017, it rained the colour of blood in Aquitaine for the space of three days.

In the year 1025, the summer was wet and cold, and pestilence raged in England and in other parts of Europe.

A. D. 1027, an extraordinary convulsive disease—which was called 'the dance of St. John or St. Vitus,' on account of the Bacchantic leaps by which it was characterized, and which gave to those affected, whilst performing their wild dance and screaming and foaming with fury, all the appearance of persons possessed,—first showed itself in some persons near the convent church of Kolbig, not far from Bernburg. According to an oft-repeated tradition, eighteen peasants, some of whose names are still preserved, are said to have disturbed divine service on Christmas eve, by dancing and brawling in the churchyard; whereupon the priest Ruprecht inflicted a curse upon them, that they should dance and scream for a whole year without ceasing. This curse is said to have been completely fulfilled, so that the unfortunate sufferers at length sunk knee-deep into the earth, and remained the whole time without nourishment, until they were finally released by the intercession of two pious bishops. It is said, that upon this they fell into a deep sleep, which lasted *three days*, and that four of them died, the rest continuing to suffer all their lives from a trembling of their limbs. This tradition, divested of the embellishments of crafty priesthood, will show the disease to have been what we now call Chorea or St. Vitus' dance.

A. D. 1029 and 1031, epidemic pestilence again pervaded Europe, especially England and Gaul, after tempestuous seasons, devastations of locusts, meteors, eruptions of volcanoes, comets, intolerable vicissitudes of the weather, and famine had caused great havoc.

A. D. 1033, a pestilence infested England; and two years afterwards, 1035, in the month of June, so intense was the cold that all the corn and fruits were destroyed. There was another eruption of Vesuvius the year following. A. D. 1042, it snowed heavily during harvest-time; it rained excessively

throughout the year in many parts of Europe; the sea overwhelmed Flanders, and a terrible commotion of the elements was the precursor of famine and pestilence in England, Gaul, Germany, &c.; cattle and men were equally destroyed. The following year, 1043, there was another eruption of Vesuvius, and also one in A.D. 1048. A.D. 1063 the river Thames was frozen over for fourteen weeks. Pestilential diseases, such as fluxes, pleurisies, fevers, &c., carried off many hundred thousands of Saracens marching to invade Rome in the year 1064: this pestilential epidemic continued until 1066. A.D. 1067, leprosy being on the increase in Spain, lazar-houses for the lepers were first established at Valencia by Ruy Diaz de Villar, which were called 'Cid Cunpandor.' About this period an awful plague swept away a great part of the inhabitants of Egypt and Arabia. The following year, 1068, a great pestilence raged in York and Durham (in England), and a terrible plague devastated Constantinople. A.D. 1075, so intense was the cold this year that the Thames was frozen over from the month of November until April the following year, 1076; with the exception of a very few days, there was scarcely any thaw during all this period. A.D. 1077, London was nearly destroyed by fire. About this period, and two years after, famine, pestilence, and locusts made great havoc in Italy, Russia, Flanders, and in England.

In the years 1087-88 and 1089, very rainy, cold summers and extreme winters were experienced in England, Gaul, and Germany, when pestilence and famine did much mischief in those countries. There were also famine and epidemic disease in Italy. In the latter year, 1089, erysipelas prevailed epidemically in France, causing great mortality. A.D. 1090, a terrible earthquake was felt throughout England, which was followed by a great scarcity of fruit and a late, unproductive harvest. The year following, a severe storm was felt in several parts of England; the wind was at south-west, especially at Winchelscomb, Gloucestershire, where the steeple of the church was thrown down; there was much thunder and lightning; the crucifix with the image of the Virgin was

broken in pieces. On the 5th of October, during the storm a thick mist for several hours darkened the sky. A few days after, on the 17th, a thunder-storm from the south-west destroyed upwards of 500 houses in London: it unroofed Bow church; and at Old Sarum the steeple was struck down, with many dwelling-houses.

A.D. 1093, a tremendous inundation occurred in Syria, by which prodigious numbers of the inhabitants and cattle, such as oxen and horses, were destroyed. A.D. 1096-97, 1100, 1103-4, and 1105, pestilence and famine happened from unhealthy seasons; there occurred excessive rains, terrible inundations, severe winters, inclement summers, variable autumns, multitudes of worms (papiliones), and violent hurricanes in England, Palestine, and Holland, in which latter place 100,000 persons were drowned by the inroads of the sea. It was during this period, A.D. 1100, that the lands of Godwin, earl of Kent, to this day called the 'Goodwin Sands,' were inundated. 1104, a comet was seen. The disease which prevailed in England was an erysipelatous epidemic fever, in which the limbs of the sick were discovered to be thickly beset with black and livid spots, like carbuncles in the plague. Two years after, fevers, fluxes, &c., were rife, and pestilence continued to prevail in various parts of Europe in the years 1108-9, 1110-11. There appeared a comet in the years 1107 and 1110. A.D. 1113, the water of the Medway failed so greatly, that the smallest boats could not float in its channel. The Thames about the same period was so low between the Tower and London Bridge that women and children waded over. Owing to so great an ebb of the ocean, the sands were laid bare for a whole day for several miles from the shore: pestilence ravaged Judea. A.D. 1116, severe earthquakes were experienced in the month of December in various parts of England, especially in Shropshire. Two years previously, 1114, several bridges, being built of wood, were broken down in England by the ice, when it thawed after the severe frost.

From the year 1120, a pestilential period equal in intensity

and destructiveness to that between the years 740 and 1000 (a period of 260 years), preceded by famine, murrain, &c., commenced, and continued to ravage various parts of the globe until 1392 (272 years), a brief notice of which, taken from the chronicles, will show its extent and fatality.

From A.D. 1120 unto 1125, erysipelas raged epidemically with great mortality in England, and it has been computed that, by it, a third of the population perished in those years. A.D. 1126-27 and 1128 a destructive pestilence again prevailed in England. A.D. 1130, a severe earthquake was felt in Shropshire in the month of September. A.D. 1133, the Po was frozen over from Cremona to the sea, and the year after, 1134, an earthquake occurred, just as King Henry was about to embark for Normandy, when flames of fire burst out of certain rifts of the earth with great violence. On the 2nd of August there was an eruption of Vesuvius, A.D. 1136, and the year following, a severe earthquake swallowed up the city of Catania, with more than 15,000 of the inhabitants. Dismal pestilence occurred again in England, lasting twelve years, from 1133 unto 1146; famine also added to the miseries of the inhabitants, and much cattle were destroyed by murrain, and for want of provender.

From the year 1150 to 1169 severe winters and dry summers were experienced; there were frequent inundations and earthquakes; and famine and pestilence swept the world, especially Scotland, Ireland, Italy, Gaul, Sicily, Judea, Asia, and Africa. A.D. 1164, there was a great inundation in Friesland, which covered nearly the whole country, and destroyed vast numbers of the inhabitants. A.D. 1167, Henry II.'s palace in Dublin, at which he spent his Christmas, was built of wattles, with a straw roof, and the sides formed of clay. A.D. 1172, great mortality from dysentery was experienced in England; and two years after, small-pox, measles, epidemic catarrh, scarlet fever, quinsies, and pleurisies were greatly prevalent: similar maladies were rife in various other parts of the world from 1175 to 1193. A.D. 1179, about Christmas, at a place called Oxen-hall,

near Darlington, in the bishopric of Durham, the earth raised itself up like a lofty tower, and thus remained for several hours, when on a sudden it sunk down again with a horrid noise, and formed a deep pit, which continues until this day: it is supposed that the wells that are now called Hell-kettles were formed by this convulsion of nature. A.D. 1183 and following years, a severe pestilence scourged England, and the plague raged at Rome. A.D. 1185, an earthquake overthrew the church at Lincoln; at the same time other places in the neighbourhood suffered from the shock. Castile, and principally the city of Leon, suffered from a most cruel plague which spared neither sex nor grade, visiting palaces as well as the hovels of the poor. Many of the bishops were carried off.

A.D. 1190. The old chronicler Geoffrey de Vinsauf describes a terrible famine and pestilence that happened in 1190, "in the army of the Crusaders at the siege of Acre, owing to the villany of the Marquis of Montferrat, the governor of Tyre, who not only refused to supply the soldiers with food, but would not either allow of the townsfolk to send them provisions." So great was the famine and the scarcity, that "a moderate measure of wheat which a man could carry under his arm was sold for 100 aurei, a chicken for twelve sols, and an egg for six deniers. The men were reduced to feed on their horses, which they were compelled to kill, not even the entrails being rejected. Men of high rank and the sons of great men fed upon grass even; and herbs such as they once despised and believed not fit for human use, the greatness of the famine made now most sweet to the starving. The public ovens were constantly occupied by men fighting for the bread, and noblemen, suffering from the pangs of hunger, became thieves and stole the loaves from the bakers' shops." To add to their misery, heavy rains fell, and pestilence broke out amongst them, so that a thousand deaths happened daily. De Vinsauf says, "The unusual showers, by their constant and continuous fall, had such an injurious effect upon the soldiers, that, with the excess of the afflic-

tion, their limbs becoming swollen, the whole body was affected as with the dropsy, and from the violence of the disease the teeth of some of them were loosened and fell out." But few of those attacked recovered. Every section of this old work, descriptive of this pestilence, ends with a fierce imprecation on the Marquis for his desertion and perfidy.

A.D. 1193 and 1194, there was a famine in Italy, and pestilence swept England, continuing till 1196. "The common people perished in every quarter for lack of food, and the fiercest pestilence followed, in the form of acute fever, which destroyed such numbers that scarcely any were left to minister unto the sick; the customary funeral service ceased, and in many places large ditches were made, into which the dead were thrown."—(Chron. W. Humford, vol. ii. p. 546-7.) There was, A.D. 1196, a great famine and plague in the principality of Catalonia, and 1199, pestilential fever raged at Cordova, in which the celebrated physician Averrhoes observed that every patient who was bled before purging invariably died.

England again suffered severely from epidemic pestilence in the year 1200, and also in the following year. A.D. 1205, a severe frost was experienced in England from the 14th of January unto the 22nd of March.

A.D. 1206, on the last day of the month of February, there was an eclipse of the sun, which lasted six hours—the darkness was as great as at midnight. This phenomenon was followed by abundant and continued rains, inundations, and severe epidemic pestilence in Spain.

The years 1210-1213, 1217, 1218, and 1220, were marked by ordinary seasons, except in Spain, Italy, and Friesland. In the former place, Spain, 1217, the drought was so great as not only to destroy the harvests, but the pasture had the appearance of having been burnt up; famine was the consequence, with disease both in men and cattle. In Italy the plague, it is said, scarcely left a tenth part of the inhabitants alive, and in Damietta it is asserted that only three persons

out of 70,000 survived. In Friesland, A.D. 1218, there was an inundation which destroyed cattle, houses, and many persons. In 1221, excessive rains, floods, frosts, and inclement heats induced a famine and pestilence, which almost desolated the whole of Europe; in some countries, the living were exhausted burying the dead, and in some cities scarcely a person survived the terrible destruction.

A.D. 1222, there was a severe thunder-storm in England with lightning, which destroyed several churches; the summer was excessively dry; frost and deep snow in April had destroyed the blossoms of the fruits; the country was deluged with rains in autumn, and swept with tempestuous winds; and the plague raged with uncontrollable fury in Germany, Hungary, Gaul, Egypt, and other countries: the animals also suffered from disease. The winter of 1225 was rigorous, following the great drought. In 1224 a dearth ensued, and there was a great mortality among sheep.

A.D. 1228, abundant rains, followed by a hot summer, the subsequent winter being a severe one, induced fatal disease, and an inundation at Friesland destroyed 100,000 persons.

The inundation of the Tiber, which happened A.D. 1230, drowned all the lower city of Rome, the river rising even to the stairs of St. Peter's church: July and August following were exceedingly hot; famine ensued, and afterwards pestilence commenced and continued until A.D. 1235. England suffered also from pestilence, which decimated the population; in that year 20,000 persons, it is supposed, died of starvation alone in London. About this period, leprosy became so common in England that it was made the subject of several legislative enactments.

During this year, 1230, when King Don Jayme seized on the island of Mallorca, a frightful and lethal pestilence prevailed not only among the poor and wretched, but also among the higher orders; in the course of only one month, several nobles and individuals of the first families of Aragon and Catalonia died. The desolation which this dire pestilence caused was such that it almost depopulated the island,

and forced the king to send galleys to Catalonia in search of colonists, he having given an order to Don Pedro Cornel for 100,000 reals to bring from Aragon 150 gentry,—caballeros or nobles. This pestilence increased with another no less fatal disease, viz., 'the Sacred Persian or St. Anthony's fire;' so that this great monarch, anxious for the safety of his people, established in the island, by his mandate of 13th September of the same year, the hospital of St. Anthony for the reception and treatment of all suffering from so terrible a malady, as appears in the history of the kingdom of Mallorca written by the chronicler or historian Don Vincente Mut. In imitation of this establishment, and of that founded in Castro Xerez in 1214, other hospitals were erected for the same purposes in Madrid, Saragossa, and in various other provinces of the kingdom. Twenty-three years after, another hospital, called after St. Lazarus, was established in the city of Seville, similar to that which was built in the city of Valencia in the year 1067. The Annals of Seville, written by Zurita and Don Alonso Melgado, state that this hospital was founded by King Alonso the Wise. About this time, 1230, Denmark, Italy, and Gaul were visited by a severe epidemic pestilence, as also were various other parts of Europe; it continued until 1236.

A.D. 1233 it thundered and lightened for thirteen days, with heavy rains, which destroyed all vegetation in England, when famine and disease were the consequences. At this time most of the houses in London were built of wood and wattles, and thatched with straw; the windows were without glass, and there were neither chimneys nor boarded floors; common straw was used for the king's bed. The Mediterranean was frozen over; loaded waggons also crossed the Adriatic in front of Venice. A.D. 1234 and the year following, 1235, the Thames rose so high at Westminster, that the lawyers and other members of the court were brought out of the Hall in boats. A.D. 1237, the dancing disease, similar to that which was rife A.D. 1027 at Kolbig, broke out amongst upwards of 100 children at Erfurt; they were said to have been sud-

denly seized with this singular malady, and to have proceeded dancing and jumping along the road to Armstadt; when they arrived at that place they fell exhausted to the ground, and, according to the account of an old chronicle, many of them died, after they were taken home by their parents, and the rest remained afflicted to the end of their lives with a permanent tremor. The years 1238 and 1239 were also destructive years in Europe.

A.D. 1240, the fish died on the coast of England; inclement seasons prevailed, and pestilence appeared in various parts of that country. Two years after, A.D. 1242, excessive rains swelled the river Thames, and inundated the country round about Lambeth on the Surrey side. The year following was remarkable for the appearance of meteors and drought; deadly pestilence prevailed in various parts of England. A.D. 1247, pestilence again occurred in England; it broke out in the month of September. A.D. 1249, an earthquake threw down St. Michael's on the Hill without Glastonbury; a severe shock was felt also about the same period in Somersetshire.

In the same year, 1249, a dreadful pestilence ravaged the armies of St. Louis the Crusader, caused, says Joinville, his historian, by the decomposition of the dead bodies of those who had been slain in two great battles fought a few days previously. They had been thrown into the river by the Saracens, and when they floated, were arrested by the low bridge, which was the means of communication between the two divisions of the French troops. The river was covered with them from bank to bank, so that the water could not be seen a good stone's-throw from the bridge upwards. The pious king caused the bodies of the Christians to be removed from the river and buried in deep graves; those of the Saracens were thrust under the arch of the bridge, and floated down to the sea. This occurred during Lent, and all that time, being obliged by their creed to live on fish, the soldiers could get no other than eel-pouts,—a gluttonous fish, which fed on the dead bodies.

The disease which broke out among them, Joinville says, dried up the flesh on their legs to the bone, and the skin became tanned as black as the ground, or like an old boot that has long lain behind a coffer (evidently a kind of dry gangrene). In addition to this miserable disorder, those affected by it had another sore complaint in the mouth, from eating such fish, that rotted the gums, and caused a most stinking breath: very few escaped death that were thus attacked; and the surest symptom of its being fatal was a bleeding at the nose; when that took place, none recovered. Starvation was soon added to their miseries, for the enemy was enabled so to blockade them, that the provision-boats could not reach them. The disorder so increased in the army, that the barbers were forced to cut away very large pieces of flesh from the gums to enable their patients to eat. The mortality was very great indeed, but what number thus perished miserably is not mentioned by Joinville.

In the year 1250 the summer was rainy and tempestuous, and a hard winter followed. The old town of Winchelsea was swallowed up by the sea, and an earthquake was felt at St. Albans, that did much damage. The summer of 1251 was intolerably hot; there was a famine in Italy, and epidemic pestilence traversed all England, and was attended with great mortality; a thunder-storm occurred, during which the chimney of the chamber where the queen and her children lay at Windsor was struck down, and the whole apartment violently shaken; large oaks in the park were torn up by the roots: the lightning was so terrible as to surpass any that had occurred in the memory of man. A.D. 1252, the late frost in spring, succeeding drought, destroyed the vegetation; there were heavy rains in July; at Michaelmas the plague began to rage in London, and pervaded all England, continuing until August in the following year, thus affording an instance of this disease beginning in autumn, running through the winter, and terminating in the summer. The winter of 1254 was severely cold; a murrain

appeared among sheep, and a mortal disease among horses called 'the evil of the tongue.'

A.D. 1255-56 and 1258, the tides rose uncommonly high; a comet was observed in 1256; the rivers swelled with excessive rains, tempests levelled buildings, the summers were wet, the crops failed by the destroying power of the elements, and dearth, famine, and pestilence caused great havoc amongst the inhabitants of England; 15,000 persons perished in London alone from hunger. "The inundations in autumn," says M'Culloch, "destroyed the crops; fatal fevers prevailed, principally in the summer, during the dog days, when to one cemetery alone, that of St. Edward's, 2000 bodies were carried." Long droughts succeeded, and the mortality continued until 1257. A.D. 1264, a murrain destroyed much cattle in England, especially horses; and in A.D. 1266, swarms of the palmer-worms destroyed all vegetation in Scotland. In 1269, excessive seasons existed; pestilence destroyed the Crusaders on their march to the Holy Land, and the French king and his son perished by it. A.D. 1274, a grievous rot broke out amongst the sheep, which persisted for twenty-five or twenty-eight years, destroying almost all the sheep in England. From the year 1277 to that of 1340 similar seasons, inundations, famines, and pestilence reigned at different times and in different places, among the inhabitants of Britain, Italy, Poland, Denmark, Prussia, Zealand, Egypt, Germany, Bohemia, Spain, &c.

A.D. 1278. In the month of June, this year, the dancing mania again occurred on the Mosel Bridge at Utrecht, when 200 fanatics began to dance, and would not desist until a priest passed who was carrying the host to a person who was sick, upon which, as if in punishment of their crime, the bridge gave way, and they were all drowned.

A.D. 1283, King Philip of France invaded Spain with an army consisting of 200,000 infantry and 8600 cavalry; when at Gerona, this army suffered from pestilence, 4000 being carried off by it. Innumerable swarms of flies, said to be as big as acorns, were generated, and attacked both men

and horses, numbers of whom were killed by their poison. This pestilential season was attributed to a miracle wrought by St. Narcissus.

According to the veterinary surgeons Martin Arrendondo and Fernando Calvo, in the introduction to the Commentaries of the celebrated Francisco de la Reyna, mention is made of an epizootic of great severity, which occurred in one of the cities of the kingdom of Seville, A.D. 1301, by which there died more than 1000 horses. The above-mentioned authors derive their information from a paragraph of Laurenciscus Rasius, in his work entitled 'Hippiatria or Marescalia,' in which, when speaking of the diseases of horses, he thus writes: "Dicta autem infirmitas (febris) epidemialis est, et ex ipsa anno CCCI. fuerunt in urbe mortui plusquam mille."

A.D. 1285, a severe thunder-storm was experienced in various parts of England: as the king and queen were holding converse in their bed-room, a flash of lightning passed by them, doing them no injury; but it struck and killed two of their attendants who were in an ante-room. It was about this period that water was conveyed to London by means of leaden pipes after fifty years' labour. Severe dysentery prevailed in various parts of the kingdom, as also an epidemic, simulating the influenza of the present day, complicated with typhoid symptoms, which persisted for upwards of ten years. A.D. 1299, a comet was seen. The seasons for three years were inhospitable; severe catarrhs with fluxes pervaded England.

A.D. 1302, great drought prevailed in Spain similar to those which had occurred for centuries past; famine ensued, when pestilence raged with great violence, carrying off thousands in various parts of the country.

A.D. 1307-8, 1309, and 1310, intemperate seasons were experienced, and famine was the consequence, more especially in England, Ireland, and Scotland, with great mortality in the latter country. It was about this period that coals were first brought into use in England. Various parts of London, as shown by Stow, were in a filthy condition, which, with the

mode of living, and the disgusting habits of the inhabitants, gave ample cause for the outbreak of pestilence. Fleet ditch was "of such breadth and depth," so says Stow, "that ten or twelve ships' navies at once, with merchandise, were wont to come to the bridge Fleete; for some time this canal had been neglected, and became an intolerable nuisance in a variety of ways." It was not until 1733 that it was arched over, when the Fleet Market was built on it. Pope denounces the filthy condition of Fleet ditch in the following lines of his 'Dunciad:'

> "By Bridewell all descend
> (As morning prayer and flagellation end)
> To where Fleet ditch, with disembouging streams,
> Rolls the large tribute of dead dogs to Thames,
> The *king* of dykes! than whom no sluice of mud
> With deeper sable blots the silver flood:
> 'Here trip, my children! here at once leap in,
> Here prove who best can dash through thick and thin;
> And who the most in love of dirt excel—
> Or dark dexterity of groping well;
> Who flings most filth, and wide pollutes around
> The stream, be his the weekly journals' bound;
> A pig of lead to him who dives the best;
> A peck of coals a-piece shall glad the rest.'"

A.D. 1316, a peculiar disease prevailed in England,—fever, with severe dysentery, which raged with an intensity and mortality equal to the true plague: scarcity amounting to famine was experienced at the same time, wheat selling at 45*s.* per quarter, equal in those days to £30 sterling of our money. A.D. 1327, a comet was seen; the year following, an earthquake, the greatest ever felt in England, occurred on the 14th of November.

A.D. 1330, the weather was so tempestuous in England, and the rains fell so heavily, that the harvest did not begin until Michaelmas. A storm from the westward overthrew several houses and did much damage, tearing up forest trees of immense size by the roots. Five years after, 1335, there was a grievous famine in England, which was succeeded by pestilence, and attended with great mortality.

# CHAPTER III.

## FROM A.D. 1333 TO 1418.

PROCEEDING in the annals of antecedent ages, we have now to record a series of mighty revolutions in the organism of the earth, accompanied by general and awful commotions of the elements.

"Earthquakes, Nature's agonizing pangs,
Oft shake th' astonish'd isles;—the Solfaterre
Or sends forth thick, blue, suffocating streams,
Or shoots to temporary flame. A din
Wild through the mountains' quivering rocky caves,
Like the dread crash of tumbling planets, roars.
When tremble thus the pillars of the globe,
Like the tall cocoa by the fierce north blown,
Can the poor brittle tenements of man
Withstand the dread convulsion? Their dear homes
(Which, shaking, tottering, crashing, bursting, fall)
The boldest fly; and on the open plain
Appall'd, in agony the moment wait
When, with disrupture vast, the waving earth
Shall 'whelm them in her sea-disgorging womb.
Nor less affrighted are the bestial kind:
The bold steed quivers in each panting vein,
And staggers bathed in deluges of sweat;
The lowing herds forsake their grassy food,
And send forth frighted, woeful, hollow sounds;
The dog, thy trusty sentinel of night,
Deserts his post assign'd, and piteous howls.
Wide ocean feels
The mountain waves, passing their custom'd bounds,
Make direful, loud incursions on the land,
All-overwhelming: sudden they retreat,
With their whole troubled waters; but anon
Sudden return, with louder, mightier force.
The black rocks whiten, the vex'd shores resound;

And yet more rapid, distant they retire.
Vast coruscations lighten all the sky
With volumed flames; while thunder's voice
From forth his shrine, by night and horror girt,
Astounds the guilty, and appals the good."

The great events to which we allude began, in the year 1333, first in China. Here parching drought, succeeded by famine, laid waste the tract of country watered by the rivers Kiang and Hoai. Rain, about this period, fell in torrents in and about Kingsai, destroying, it is said, by the floods more than 400,000 persons. The mountain Tsincheou, in falling, formed vast chasms in the earth. About this time, according to the diary of Ramon Vila, there were experienced dire famine and pestilence at Barcelona, which in a very short time carried off 10,000 persons.

In the succeeding year, 1334, inundations occurred in the neighbourhood of Canton. Soon after, at Tche, after an unexampled drought, pestilence arose and carried off 500,000 human beings. Hecker graphically describes the unprecedented and universal commotions of this period. An earthquake happened near Kingsai, and subsequent to the falling-in of the mountains of Ki-ming-Chan, a lake was formed, of more than a hundred leagues in circumference, where thousands found their grave. In Houkouang and Ho-nan a drought prevailed for five months, and innumerable swarms of locusts destroyed the vegetation; famine and pestilence, as is usually the case, following in their train. It is remarkable, that, simultaneously with a drought and renewed floods in China, in 1336, many uncommon atmospheric phenomena and, in the winter-time, frequent thunder-storms were observed in the north of France; and, so early as the eventful year 1333, an eruption of Etna took place. According to the Chinese annals, 4,000,000 persons perished by famine in the neighbourhood of Kiang in 1337; and deluges of rain, swarms of locusts, and an earthquake which lasted six days, caused an incredible devastation.

During this year, 776 of the Ejira, or 1334 of the Christian era, Mohamed Ben Abdalla Ben Alkhatrib, a native of the

city of Granada, being a physician and a member of an illustrious family versed in all species of cosmography, acquired considerable authority and importance amongst many of the Moorish kings of Granada; but, towards the termination of his valuable life, fortune became adverse; for having been accused of treason during the reign of Ebn Alahmoz, he was thrown into prison, and shortly afterwards died, leaving, amongst other works on medicine and the veterinary art, one on the mode of avoiding plague, which is cited by Casiri in his 'Biblioteca Arábigo Hispana Escurialense,' tom. ii. pp. 71 and 72.

A. D. 1338, Kingsai was visited by an earthquake of ten days' duration; at the same time France suffered from failure in the harvest. From this period until 1342 there was in China a succession of inundations, earthquakes, and famines. It seemed as though everywhere on the tops of mountains springs were made to burst forth, and dry tracts were deluged in an inexplicable manner. Great floods also occurred in the vicinity of the Rhine, in France, &c. In the year following, 1343, the mountain Hong-tchang, in China, fell in; and in Pien-tcheou and Leang-tcheou, three months after, rain followed, and unheard-of inundations, which destroyed seven cities:

> "Towers, temples, palaces
> Flung from their deep foundations; roof on roof
> Crush'd horrible, and pile on pile o'erturn'd,
> Fall total!"

In Egypt and in Syria violent earthquakes took place, and in China they became from this time more and more frequent; for they recurred, in 1344, in Ven-tcheou, where the sea overflowed. A dreadful earthquake was experienced at Lisbon, where vast numbers of the inhabitants perished by the falling of the buildings. A. D. 1345, in Ki-tcheou, and also in both the following years in Canton, great commotions were experienced, especially subterraneous thunder. Meanwhile floods and famine devastated various districts until 1347, when the fury of the elements subsided in China.

Whilst pestilence was thus raging, China, Syria, Greece, Egypt, Asia, and Africa suffered from it, A.D. 1346; and the year following, 1347, a pestilence similar to that which subsequently committed such ravages in the south of Gaul, Spain, and England (1348), raged in Italy and Sicily.

1345. Guido de Gaullaco informs us that in Spain, in the month of March, there broke out a pestilence, which he affirms spread all over the world, leaving scarcely a fourth part of the human race alive. Andres Laguna, Martinez de Leyva, Duarte Nunhez, and other medical writers, speak with horror and astonishment of this terrific plague, which, they say, lasted five years.

Abu Giaphar Ahmed Ebn Ali Ebn Khatemar, a native of the city of Almeria, and one of the Arabian physicians, who, according to Casiri, was instructed in the history of the great pestilences, which nearly the entire world suffered from in the years of the Egira 748, 749, and 750, or of the Christian epoch 1347-48 and 1349, quotes the following passage: "The pestilence first broke out in Africa, whence it extended through all parts of Egypt and Asia, and finally attacked Italy, France, and Spain; but in the city of Almeria, where it raged with great malignity, it lasted nearly eleven months, namely, from the beginning of the month Rabiu, the first month of the year of the Egira 749, and of the Christian epoch 1348, until the commencement of the following year." The work which contains the description of this pestilence consists of ten chapters, and is entitled 'Morbi in posterum vitandi Descriptio et Remedia.' Don Miguel Casiri makes mention of it in his Codex of the year 1780.

Abu Abdalla Mohamed Ben Alkhatrib, a native of Granada and brother of the other Alkhatrib, also wrote a work on the causes and cure of the pestilence that affected the city of Granada in the year of the Egira 749, and of our Lord 1348, entitled 'Quæsita de morbo horribili perutilia;' and Casiri alludes to this work also in his Codex.

Villanius, the historian of Florence, gives an account of a pestilence which commenced in A.D. 1346 in Upper Asia: it

first appeared in Cathay; it arose from a most filthy smelling vapour, supposed to have proceeded from a certain fiery body, which either fell down from the atmosphere, or was eructated from the earth. This vapour, like a fire, consumed all that stood in its way,—animals, horses, trees, &c., for the space of fifteen days' journey all around; and some most filthy little beasts furnished with feet and tails, as also worms and a small kind of snake in numberless multitudes, fell at the same time from the atmosphere upon the earth; the stench and putrefaction from these infected the very air and all the circumjacent regions. A pestilence having arisen from them, spread around, depopulating the whole of Asia, and subsequently Egypt, Greece, and Italy; thence it spread into France, Spain, and England, and at length into Germany. In the city of Florence alone, says Villanius, there perished 60,000 persons, but St. Anthony computes the number to have been 100,000. There prevailed about this period, or at the commencement of the year 1347, epidemic pestilence, in the shape of pleurisies, quinsies, and spotted fevers, which at last terminated in the real Oriental plague, with buboes and carbuncles: it was reported that 50,000 were carried off in London in one week, and the deaths at Norwich were almost equally numerous. About this period, 100,000 persons perished from pestilence at Venice: Lubeck lost 90,000, while the deaths from similar disease were computed at 200,000 in the kingdom of Spain. This pestilence persisted in many parts during the following year.

In the beginning of 1348 pestilence universally prevailed over Europe and in other quarters of the globe; it commenced in Syria, spread along the shores of the Pontic Sea, and of Greece and Illyria, passed into Italy and Sicily, and thence to the island of Mallorca: according to Zurita, it almost depopulated that island in less than a month, more than 5000 persons having been carried off by it. In the same year, continues Zurita, a general pestilence extended from the East to the ultimate boundaries of the West, comprising



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in its ravages the kingdom of Valencia and the principalities of Catalonia. In the month of June it broke out in the city of Valencia, and its virulence was such, especially in the maritime parts, that, as before noticed, scarcely any part of Europe escaped,—persons died suddenly; from Italy it passed into Sicily, Sardinia, and so on to Mallorca. So great was the mortality at Barcelona, that in the month of June, during the usual annual solemn procession, which caused a number of priests, &c., from Scio to be present, thousands died, and amongst them four magistrates and almost all the Council of Ciento. During this period, says another author, the signs of terrestrial commotions were exhibited in Europe.

During the reign of Edward III. it rained in England from Midsummer unto Christmas, when a pestilential period commenced. A disease termed 'Sorte Diod,'—the black pestilence, or death,—committed the most terrific ravages; the lungs were principally affected. Fracastorius, in his 'Syphilis,' describes the malady. The translation runs thus:

> "A hundred years twice told have took their flight
> Since Saturn mix'd with Mars his hated light,
> Who, with their baleful influence, did infest
> The rich and potent nations of the East:
> Hence raged a dreadful pest before unknown,
> Which seized the lungs, and made the breast its throne;
> Four days it tyrannized with dreadful sway,
> When life in purple streams broke out and fled away."

This malady was accompanied by fever, difficulty of breathing, and spitting of blood; the respiration was so laborious that the sick were obliged to be always in an upright posture; deglutition was difficult, attended with flushed countenance and great restlessness: at the onset the cough was violent, but without loss of blood; after a short time, the expectoration becoming bloody, hemorrhage succeeded, when death ensued in three days: spots and abscesses sometimes formed when the disease was protracted unto the fifth day. After the disease had persisted for some months, the lungs were no longer affected, but the glands of the axillæ and of the

groins, and the parotids, swelled and suppurated. In England it lasted nine years. There were 50,000 buried in one year in the Charter-house churchyard in London. A murrain among the cattle succeeded this pestilence, and there was a great scarcity of all sorts of provisions. Greenland was entirely depopulated by this pestilence.

During the year 1348, the island of Cyprus was also visited by a most terrific pestilence; a tremendous earthquake shook the foundations of the island, and was accompanied by so frightful a hurricane, that the inhabitants who had slain the Mahometan slaves, in order that they might not themselves be subjugated by them, fled in dismay in all directions. The sea overflowed,—the ships were dashed to pieces on the rocks, and few outlived the dreadful event, whereby this fertile and blooming island was converted into a desert. Before the earthquake, it is recorded by Deguignes (p. 225) that a pestiferous wind spread so poisonous an odour, that many, being overpowered by it, fell down suddenly and expired in dreadful agonies. This phenomenon resembles many such noticed by ancient authors. This peculiar condition of the atmosphere was evident to the senses; borne by the winds, it spread from land to land, carrying disease over whole portions of the earth. It has been further recorded that, during this period, 1348, an unexampled earthquake, on the 25th of January, shook Greece, Italy, and the neighbouring countries. Naples, Rome, Pisa, Bologna, Padua, Venice, and many other cities suffered considerably; whole villages were swallowed up; castles, houses, and churches were overthrown, and thousands of people were buried under their ruins. In Carinthia, thirty villages, together with all the churches, were demolished; more than a thousand corpses were drawn from under the rubbish: the city of Villach was completely destroyed, and very few of its inhabitants were saved; when the earth ceased to tremble, it was found that mountains had been moved from their position, and that many hamlets were left in ruins. It is recorded that

during this earthquake the wine in casks became turbid,—a statement which may be considered as furnishing a proof that changes causing a decomposition of the atmosphere had taken place; similar destructive earthquakes extended as far as the neighbourhood of Basle, and recurred from time to time until 1360 throughout Germany, France, Silesia, Poland, England, and Denmark also, much further north. In the month of August, 1349, says Walsingham, black death broke out at Southampton, destroying half the population. According to another estimate, (Rymer, Fœdera,) A.D. 1348-49, and 1350, one-tenth part of the people did not survive. In a royal edict, issued December, 1349, it is said, "Non modica pars populi est defuncta;" in another, 1350, "Magna pars populi est defuncta." This pestilence spread over France and Germany, and invaded the northern parts of Europe in the year 1349.

In the years of our Lord 1350 and 1351 sore disease prevailed in Ireland, Holland, and in England; its infallible signs were, a great fever, vomiting, and spitting of blood, hemorrhage from the nose, mouth, ears, eyes, stomach, and bowels, indicating an universal disorganization of the system. Here we have the worst symptoms observable in the bilious remittent or yellow fever of the West Indies and other parts. It traversed all Germany, Russia, Hungary, Spain, and Gaul. In Denmark it spread terror and dismay, and it decimated Iceland; it persisted during the summer, autumn, winter, and spring of those years; and for several years after, violent peripneumoniæ raged in Asia, Egypt, and various other parts of the globe.—A.D. 1352. During this year scarcely one-fourth part of the Oxford students survived the plague. (A. Wood, Ath. Oxon., A.D. 1349-52.) It fell with redoubled violence on workmen and servants. The same year great numbers were carried off by pestilence in Montpelier. A great many of the lower orders of society died of the plague in England. This disease caused great ravages in Denmark, and also in Iceland; the Greenland merchants were all destroyed by it: it seized the monks and regular

clergy of all descriptions; 133 out of 140 members died of one society in Montpelier. A similar mortality happened in the Magdalen Society; not one out of 140 in Marseilles survived; 66 Carmelites perished in Avignon. This plague began in a monastery of crowded, idle, voluptuous monks. Cattle suffered greatly in many countries; 6000 sheep died in one pasture in England. Pestilence and famine, it is supposed, carried off in China, about this period, at least 900,000 of its inhabitants: in London, 50,000 bodies were interred in one graveyard. The following estimate of deaths during the above awful period was considered below the actual number of victims: in Venice 100,000 died; Basle, 14,000; Erfurt, 16,000; Strasburgh, about the same number; Paris, 50,000; Norwich, in England, 50,000; Marseilles, in one month, 56,000! Florence, 60,000; Avignon, 62,000; London, 100,000; in Lubeck, 90,000; in Spain, two-thirds of the population were destroyed; and Ireland was nearly depopulated.

A.D. 1355, a peculiar kind of madness was epidemic in England; those affected fled into the woods, and wandered about the fields. (Hecker.) Three years after, epidemic pestilence ravaged England, Africa, Cyprus, and also Italy and Florence, which last city, says Petrarch, lost 100,000 citizens. The same kind of pestilence also afflicted Gaul, Ireland, and Scotland. Stow, in his Chronicle, gives a very graphic description of the foregoing pestilential period from 1348 up to 1357. The pestilence he describes as a new disease. He says: "There began amongst the East Indians and Tartarians a certain pestilence, which at length waxed so general, infecting the middle regions of the air so greatly, that it destroyed the Saracens, Turks, Syrians, Palestinians, and the Grecians with a wonderful or rather incredible death; insomuch that those people being exceedingly dismayed with the terror thereof, consulted among themselves, and thought it good to receive the Christian faith and sacraments; for they had intelligence that the Christians which dwelt on this side of the Greek Sea were not so greatly troubled with

sickness and mortality more than common." "At length this terrible slaughter passed over into those countries which are on this side the Alps, and thence to the parts of France which are called Hesperia, and so on, by order, along into Germany and Dutchland; and the seventh year after it began, it came into England, and first began in the towns and ports joining on the sea-coasts, Dorsetshire, where, even as in other countries, it made the country quite void of inhabitants, so that there were almost none left alive. Thence it passed into Devonshire and Somersetshire, and even into Bristol, and raged in such sort that the Gloucestershire men would not suffer persons from Bristol to have any access unto them or into their country by any means; but at length it came to Gloucester, yea, and to Oxford and London, and finally it spread over all England, and so wasted and spoiled the people, that scarce the tenth person of all sorts was left alive; churchyards were not sufficient and large enough to bury their dead in: they chose certain fields appointed for the purpose, amongst which was the piece of ground denominated the Churchyard of the Holy Trinity, near East Smithfield, opened by one John Cory. One Walter Manny also purchased a piece of ground called Spital Croft, containing thirteen acres, in which were interred during the next year 50,000 bodies; in Norwich, no less than 37,104 persons, besides Mendicants and Dominicans, and in Yarmouth 7502; so that the living which was previously worth 700 marks was reduced to £40 per year." "What time this pestilence had wasted all England, the Scots, greatly rejoicing, mocked and swore ofttimes, 'By the vile death of the Englishmen;' but the sword of God's wrath slew and consumed the Scots in no less numbers than it did the other. It also wasted the Welshmen, and within a while passed over into Ireland, where it destroyed a great number of English people that dwelt there; but such as were right Irish-born, that dwelt in the hilly country, it scarcely touched, so that few of them died thereof."

A.D. 1360. Thunder-storms, accompanied by heavy rains

and lightning, did much damage in various parts of England; houses were set on fire, crops and cattle were destroyed, and pestilence, in the shape of fevers and disorder of the bowels, carried off numbers.

On the 21st of January, two years after, A.D. 1362, a feast was instituted, and a solemn mass celebrated in Scio, with divine worship in all the churches, convents, and other public places, at which all the clergy of the place assisted; and on the 15th of February a papal jubilee was published for the repose of the souls of all those who had perished by the pestilence, which had recently carried off vast numbers.

A.D. 1363, a dreadfully severe winter presaged noxious seasons in Europe. Andalusia was afflicted with a terrible pestilence, which having seized an almost incredible number of its inhabitants, is marked among the ancient writings as the second mortality, in order to distinguish it from the first of 1350, during which King Don Alonso died in the neighbourhood of Gibraltar. This pestilence made such an impression on the minds of all Spaniards, that in a sepulchral inscription in the church of St. Pablo, we read that it was erected during the second mortality, A.D. 1363. Two years after, A.D. 1365, pestilence carried off 20,000 of the inhabitants of Cologne and its vicinity.

From the year 1368 unto 1370, epidemic pestilence ravaged England and Ireland; four years after, it continued to lay England waste. A similar pestilence, about the same time, prevailed with great mortality in Italy and in Gaul.

A.D. 1371, pestilence was rife at Barcelona; and on the 13th of June, imprecatory processions were instituted in each of the parishes of that place on account of the pestilence, which lasted for one year. A comet was seen this year.

A.D. 1372, pestilence invaded Germany, Egypt, Greece, and all the East. Lubeck lost 90,000 of its inhabitants.

A.D. 1373, the use of coals was forbidden by Act of Parliament, under the idea that the smoke in London corrupted the air.

In the year of our Lord 1374, the epidemic dancing disease of St. Guy and St. John prevailed in Holland and in the Rhenish provinces, and an analogous malady, called 'Tarantisme' and 'Tigretier,' among the Abyssinians; a similar disease also prevailed in the Shetland Islands, where it had existed from time to time, as it is said, for one hundred years previously. The disease also prevailed in France, and the sufferers were called 'Convulsionnaires;' it was evidently the malady which we now term St. Vitus' Dance or Chorea, but prevailing epidemically. Hecker gives the following account of this strange malady, as it occurred about this period also in Germany; it was evidently a disease similar to that which broke out, A. D. 1027, in Bernburg, prevailed A. D. 1237 at Erfurt among children, and subsequently among adults, A. D. 1278, at Utrecht. He says "that the effects of the 'Black Death' had not yet subsided, and the graves of millions of its victims were scarcely closed when a strange delusion arose in Germany, which took possession of the minds of men, and, in spite of the divinity of our nature, hurried away body and soul into the magic circle of hellish superstition. It was a convulsion which, in the most extraordinary manner, infuriated the human frame, and excited the astonishment of contemporaries for more than two centuries, since which time it has never re-appeared. It was called the Dance of St. John or of St. Vitus, on account of the Bacchantic leaps by which it was characterized, and which gave to those affected, whilst performing their wild dance, and screaming and foaming with fury, all the appearance of persons possessed. It did not remain confined to particular localities, but was propagated by the sight of the sufferers, like a demoniacal epidemic, over the whole of Germany and the neighbouring countries to the north-west, which were already prepared for its reception by the prevailing opinion of the times.

"So early as the year 1374, assemblages of men and women were seen at Aix-la-Chapelle, who had come out of Germany, and who, united by one common delusion,

exhibited to the public, both in the streets and in the churches, the following strange spectacle. They formed circles hand-in-hand, and, appearing to have lost all control over their senses, continued dancing, regardless of the by-standers, for hours together, in wild delirium, until at length they fell down to the ground in a state of exhaustion. They then complained of extreme oppression, and groaned as if in the agonies of death, until they were swathed in cloths bound tightly round their waists, upon which they again recovered, and remained free from complaint until the next attack. This practice of swathing was resorted to on account of the tympany which followed these spasmodic ravings, but the by-standers frequently relieved patients in a less artificial manner by thumping and trampling upon the parts affected. While dancing, they neither saw nor heard, being insensible to external impressions through the senses, but were haunted by visions, their fancies conjuring up spirits, whose names they shrieked out; and some of them afterwards asserted that they felt as if they had been immersed in a stream of blood, which obliged them to leap so high. Others during the paroxysm saw the heavens open and the Saviour enthroned with the Virgin Mary, according as the religious notions of the age were strangely and variously reflected in their imaginations.

"Where the disease was completely developed, the attack commenced with epileptic convulsions. Those affected fell to the ground senseless, panting and labouring for breath; they foamed at the mouth, and suddenly springing up, began their dance amidst strange contortions. Yet the malady doubtless made its appearance very variously, and was modified by temporary or local circumstances, whereof non-medical contemporaries but imperfectly noted the essential particulars, accustomed as they were to confound their observations of natural events with their notions of the world of spirits.

"It was but a few months ere this demoniacal disease had spread from Aix-la-Chapelle, where it appeared in July, over

the neighbouring Netherlands. In Liege, Utrecht, Tongres, and many other towns of Belgium, the dancers appeared with garlands in their hair, and their waists girt with cloths, that they might, as soon as the paroxysm was over, receive immediate relief on the attack of the tympany. This bandage was, by the insertion of a stick, easily twisted tight; many, however, obtained more relief from kicks and blows, which they found numbers of persons ready to administer; for where the dancers appeared, the people assembled in crowds to gratify their curiosity with the frightful spectacle. At length the increasing number of the affected excited no less anxiety than the attention that was paid to them. In towns and villages they took possession of the religious houses; processions were everywhere instituted on their account, and masses were said, and hymns were sung, while the disease itself, of the demoniacal origin of which no one entertained the least doubt, excited everywhere astonishment and horror. In Liege the priests had recourse to exorcisms, and endeavoured by every means in their power to allay an evil which threatened so much danger to themselves; for the possessed, assembling in multitudes, frequently poured forth imprecations against them and menaced their destruction. They intimidated the people also to such a degree that there was an express ordinance issued, that no one should make any but square-toed shoes, because these fanatics had manifested a morbid dislike to the pointed shoes which had come into fashion immediately after the great mortality in 1350. They were still more irritated at the sight of red colours, the influence of which on the disordered nerves might lead us to imagine an extraordinary accordance between this spasmodic malady and the condition of infuriated animals; but in the St. John's dancers this excitement was probably connected with apparitions, consequent on their convulsions. There were likewise some of them who were unable to endure the sight of persons weeping." "A few months after this dancing malady had made its appearance at Aix-la-Chapelle, it broke out at Cologne, where the

number of those possessed amounted to more than five hundred; and about the same time at Metz, the streets of which place are said to have been filled with eleven hundred dancers. * * * * * Girls and boys quitted their parents, and servants their masters, to amuse themselves at the dances of those possessed, and greedily imbibed the poison of mental infection. Above a hundred unmarried women were seen raving about, in consecrated and unconsecrated places, and the consequences were soon perceived. Gangs of idle vagabonds, who understood how to imitate to the life the gestures and convulsions of those really affected, roved from place to place, seeking maintenance and adventures, and thus wherever they went spread this disgusting spasmodic disease like a plague; for in maladies of this kind the susceptible are infected as easily by the appearance as by the reality. At last it was found necessary to drive away these mischievous guests, who were equally inaccessible to the exorcisms of the priests and the remedies of the physicians. It was not, however, until after four months that the Rhenish cities were able to suppress these impostures, which had so alarmingly increased the original evil."

A. D. 1375, on the 20th of June, an imprecatory procession was instituted at Scio, on account of the dreadful pestilence which broke out there, and which raged more than twelve months. (*Vide* Capmany, 'Historical and Chronological Compendium of Plagues,' p. 66.)

A. D. 1379, epidemic pestilence prevailed in England, especially in the northern parts of the island. A. D. 1380, there was a general inundation in Spain, from which resulted epidemic pestilence, characteristic of an atmosphere surcharged with moisture. Three years after, 1383, was a period most fatal to Seville, in consequence of a pestilence having broken out there, which extended through its entire length and breadth. This terrible infliction was called by the old inhabitants the third mortality: it was preceded by inundations and extraordinary showers, which act unques-

tionably as predisposing causes of disease. A severe earthquake destroyed several churches A. D. 1382.

We have seen that the years 1350 and 1363 were denominated the years of the first and second mortality. The precautionary measures that were adopted to meet such evils were the formation of various hospitals for the treatment of the sick, instituted by the bishop, dean, and ecclesiastical and secular chapters. The physicians and surgeons not only contributed by their science to the relief of the plague-stricken, but also with their personal charity and the salaries which were assigned them by the city authorities. A hospital was founded under the protection of St. Cosmo and St. Amien in the parish of St. Salvalo, the patronage of which was given to the city.

A. D. 1384. During this year the third plague of Mallorca broke out; it caused considerable mortality, according to the account given by Vincente Mut in his history of that kingdom. Numbers of the soldiers of the army of Don Juan, the first king of Castile, who were in garrison at Lisbon, fell sick in consequence of the severity of the atmospheric changes, to which they were unaccustomed. The losses and sufferings of the Castilian camp increased every day, and hundreds of them became ill, and consequently the king was induced to change his position and remove his armada to Seville.

At the commencement of 1386 there was in Gallicia much sickness among the soldiers commanded by Tornas Moraix: the character of the epidemic is but imperfectly given, but history states the mortality to have been very great.

A. D. 1387, the army of the King of Portugal and of the Duke of Lancaster suffered from severe pestilence in Benavento, and in the towns of Matillas, Arzon, Villalobos, Rales, and Valderas, owing to the scarcity of provisions. In the years 1388 and 1389, violent tempests, preceded by great drought, happened; a famine ensued, when anginas and dysenteries prevailed in England and in other parts of the world. The disease affected children principally, and con-

tinued unto 1400. During this period, 1391, the disease was especially mortal in England, being felt most severely in Norfolk and at York. The year previously, 1390, when King Edward was on his march and within two leagues of Chartres, a violent storm arose, with thunder and lightning, which killed 6000 of his horses and upwards of 1000 of his best troops.

A. D. 1394, a great mortality occurred from epidemic pestilence in the kingdom of Valencia and in the principality of Catalonia, arising from great heat; nearly 10,000 persons, a greater part of whom were young, died in the city of Valencia alone. This pestilence occurred during the reign of King Don Juan.—A. D. 1396. On the 9th of December of this year, King Don Martin retired to the city of Perpignan in consequence of Barcelona being visited by pestilence.

A. D. 1400. The continued heavy rains and sterility having induced famine in Seville, caused also great mortality and pestilence, which diminished the population wonderfully. The author of the Annals of Seville mentions that this plague occurred at centenary periods.

A. D. 1401. A comet was seen. Pestilence broke out at Florence. 30,000 persons died of epidemic disease this year in London. Five years after, London was revisited by deadly pestilence. In Bourdeaux a malignant dysentery destroyed 14,000 persons, and a similar disease was equally fatal in Aquitaine and Gascony. A. D. 1407, the Mediterranean was frozen over for fifteen weeks.—A. D. 1411. Two diseases, very similar, appeared in France this year, and were equally general; the first was called 'Tac,' the second 'Ladendo:' both were accompanied by severe cough. In the Ladendo there seems to have been some affection of the kidney of an inflammatory nature: the pain was as severe as in a fit of the stone, and was followed by fever, loss of appetite, and incessant cough, which terminated very frequently in unpleasant eruptions about the nose and mouth; the disease ran its course generally in fifteen days, and was unattended by danger, notwithstanding the severity of the symptoms.

Three years after, an epidemic disease of a similar nature re-appeared in France, when it received the name of 'Coqueluche:' it was attended with severe hoarseness, and was so general that all public business in Paris was interrupted by it.

A. D. 1410. Epidemic pestilence broke out at Seville this year; it commenced in Niebla, Gibraleon, and Trigueros, and extended thence to Seville, where it raged from March unto August. On the 30th of May and on the 5th of August an earthquake was felt at Barcelona, and epidemic pestilence prevailed, which lasted until the anniversary of the Nativity.

## CHAPTER IV.

### FROM A.D. 1418 TO 1530.

A. D. 1418, Strasburgh was visited by the 'Dancing Plague,' and the same infatuation existed amongst the people there, as in the towns of Belgium and the Lower Rhine A. D. 1374; many who were seized on seeing the affected, excited attention at first by their confused and absurd behaviour, and then by their constantly following the swarms of dancers. These were seen day and night passing through the streets, accompanied by musicians playing on bagpipes, and by innumerable spectators attracted by curiosity, to whom were added anxious parents and relations who came to look after those among the misguided multitude who belonged to their respective families.

Imposture and profligacy played their part in this city also, but the morbid delusion itself seems to have predominated. On this account religion could only bring provisional aid, and therefore the Town Council benevolently took an interest in the afflicted: they divided them into separate parties, to each of which they appointed responsible superintendents, to protect them from harm, and perhaps also to restrain their turbulence. They were thus conducted on foot and in carriages to the chapels of St. Vitus, near Zabern, and Rotestein, where priests were in attendance to influence their misguided minds by masses and other religious ceremonies. After divine worship was completed, they were led in solemn procession to the altar, where they made some small offering of alms, and where, it is probable, many, through the influence of devotion and the sanctity of the place, were cured of this lamentable aberration.

It is worthy of observation, at all events, that the dancing mania did not recommence at the altars of the saint, that from him alone assistance was implored, and that through his miraculous interposition a cure was expected, which was beyond the reach of human skill. The personal history of St. Vitus is by no means unimportant in this matter. He was a Sicilian youth, who, together with Modestus and Crescentia, suffered martyrdom at the time of the persecution of the Christians under Diocletian, in A.D. 303. The legends respecting him are obscure, and he would certainly have been passed over without notice among the innumerable apocryphal martyrs of the earliest centuries, had not the transfer of his body to St. Denys, and thence in the year 836 to Corvey, raised him to a higher rank. From this time forth it may be supposed that many miracles were performed at his new sepulchre, which were of essential service in confirming the Roman Catholic faith among the Germans, and St. Vitus was soon ranked among the fourteen saintly helpers (Nothelfer or Apotheker). His altars were multiplied, and the people had recourse to them in all kinds of distresses; they revered him as a powerful intercessor. As the worship of these saints was, however, at that time stripped of all historical connexions, which were purposely obliterated by the priesthood, a legend was invented at the beginning of the fifteenth century, or perhaps even so early as the fourteenth, that St. Vitus had, just before he bent his neck to the sword, prayed to God that he might protect from the dancing mania all those who should solemnize the day of his commemoration and fast upon its eve, and that thereupon a voice from heaven was heard, saying, "Vitus, thy prayer is accepted." Thus St. Vitus became the patron saint of those affected with the dancing plague, as St. Martin of Tours was at one time the succourer of persons in small pox; St. Anthony, of those suffering under the 'hellish fire;' and as St. Margaret was the Juno Lucina of pregnant women.

A.D. 1426, the Baltic was frozen over, and on the 28th of September a severe earthquake was felt in England. Dantzic

was visited by pestilence and famine; and the year following, England suffered from epidemic pestilence, and a severe earthquake, which occurred on the 14th of July.

A.D. 1429, epidemic pestilence prevailed at Barcelona, as is proved by the donation of £8 and 16 sueldos, which were paid to a chaplain for his labour in removing for burial the dead bodies found in the churches and elsewhere.

A. D. 1434, there was a severe frost in England, which lasted from the 24th of November to the 10th of February in the following year.

This year, 1436, the seasons were inclement and rainy, and there was a dearth of corn in various parts of Europe. Epidemic coughs, small pox, and fevers swept away many thousands from the face of the earth. The moisture which existed during the preceding year in Spain, was excessive; it did not cease raining and snowing in Castile from the 29th of October, 1434, to the 7th of January in the following year, 1435.

Four years after, 1439, the city Huesca, in the kingdom of Aragon, suffered from such a cruel pestilence, that, following the credulity of the times, Alonso de Burgos says in his Treatise on Plague, "that the disease in Huesca only yielded to a solemn and general vow which the city made, to celebrate a feast on the day of the Conception of the Virgin, and to observe its vigil with an absolute fast."

A.D. 1438, there was a famine in England. During a storm on the 25th of November a heavy gust of wind blew off the leads of the Grey Friars Church, in London, and almost beat down the whole side of a street called the Old Exchange.

A.D. 1441. During this year, brother Diego de Herrera complained of an itching, or leprosy, all over his body: the physicians declared the disease to be communicable, and obliged him to live outside the monastery of Mejorada—a fact showing that this disease had existed previously in Spain, and that the physicians were acquainted with its characters. These observations are to be found in the life

of the illustrious Senhor Don Diego de Anaya, Archbishop of Granada.

A.D. 1443, there was a severe frost in England from the 14th of November until the 10th of February in the following year. A thunder-storm with severe lightning did much damage to St. Paul's Church and to that of Waltham Cross; they were fired by the lightning on Candlemas day. From about this period until 1450, famine and pestilence were destructive to millions of the human race, especially in Italy, Gaul, Germany, Asia, and Spain. About the same date, King Don Alonso of Aragon, surnamed the Wise, conquered the kingdom of Naples. The great obstacles which presented themselves before accomplishing the subjugation of the provinces of Abruzzo, coupled with the sufferings caused by a protracted and desperate war, subjected the numerous cavalry employed in the service to attacks of disease. Great numbers of their horses died from a particular kind of epizootic. This great mortality caused the king to order his major domo, one Manuel Diaz, to call together all the veterinary surgeons of his cavalry and the surgeons of the infantry, in order that they should compose a work on farriery—thus giving rise to the renewal of that most useful art, as noted in the Spanish Hippiatria, or Veterinary of Spain.

A.D. 1446, the sea broke down the dykes at Dort, in Holland, on the 17th of April, and drowned 100,000 persons.

A.D. 1448. "Owing to the heavy rains of the previous year, 1447," says Martinez de Leiva, "a severe pestilence prevailed, which was attributed to the excess of moisture, conjoined with the unprecedented heat:" it was rife in various parts of Spain. On the 11th of October, public prayers were offered up at Barcelona on account of this pestilence and of other calamities, such as earthquakes, &c. During this year great mortality occurred in the army of King Alonso V., encamped in the neighbourhood of Pomblein.

A.D. 1450, in the month of June, a pestilence broke out

in the city of Saragossa. Zurita, who in his Annals of Aragon gives an account of this pestilence, specifies but little, although it is known to have raged for some time, and to have extended to Barcelona, where it continued for two years after (1452). On the Sabbath, the 22nd of April, the authorities of this city, Barcelona, despatched a state-messenger to the monasteries of Saint Gerónimo de la Murta, of the district of Ebro, de Monte Alegre, de Poblet, de Santa Cruce, and de Escala Dei, to solicit the brethren to implore the Almighty to relieve them from the sore pestilence with which the city was visited. On the 13th of June of this year, the Queen Donna Maria retired, with her Court, from the city, for fear of the pestilence.

A. D. 1456. There were two comets observed this year: three years after, 1459, the Baltic was so frozen over, that people travelled on the ice from Denmark to Lubeck, Wismar, Rostock, and Stralsund.

A. D. 1465, pestilence again visited Italy. On the 6th of December of this year, the brothers Miguel Capelier and Leonardo Crestia, of the order of St. Francis of the Convent of Jesus, were deputed by the corporation of the city of Barcelona to implore the interposition of the Almighty to free the city from pestilence. The year following, Cadiz was nearly depopulated by a plague. Other parts of Spain suffered also from epidemic pestilence; so much so, that on the 7th of January, 1466, the Council of Ciento voted that the Feast of St. Sebastian should not be observed, on account of the epidemic which was raging at Barcelona. Further, on Thursday, the 13th, the Council of Thirty-two determined that an image of the guardian angel should be erected; and on the 17th of November following there was a solemn procession ordered.

A. D. 1468, epidemic pestilence raged at Parma.

A. D. 1471, Pope Sextus erected a brothel at Rome, and the Roman prostitutes paid him a weekly tax, which amounted to 20,000 ducats a year.

A. D. 1472, a comet was seen. The year following, 1473,

excessive heat and drought prevailed, which persisted for three years. About this period, 1474, the city of Valencia suffered from a severe epidemic. Luis Alcanyis, a famous Valencian physician, published a treatise in the Limosin language (that of the Troubadours), without giving either the place of printing or the year of publication; but it seems that he flourished about this period (1474), and that his treatise was written in consequence of the epidemic under notice: it was entitled, 'Regiment preservatiu é curatiu de la Pestilencia, compost per Mestre Luis Alcanyis, Mestre en Medicina.'

A. D. 1475-76, the Danube was fordable in Hungary, and swarms of locusts destroyed all vegetation there and in Poland. The second pestilence, which devastated the island of Mallorca, according to the authority of Don Vincente Mut, occurred. A Board of Health was formed by the governor of Mallorca, Don Berengario Blanels, in order to prescribe rules for government and remedial measures. This 'Morbeira,' or Board of Health, was composed of a magistrate, a knight, a physician, a surgeon, a tradesman, and a merchant. Quarantine for forty days was established. In this year there was published a work entitled 'De Epidemiâ et Peste, Magistri Vallestii Tarentini, Artium Medicinæque Doctoris eximii,' which was translated by Dr. Juan Villar into the Castilian language. In the latter year (1476), the Council of One Hundred ordered an imprecatory chapel to be consecrated at St. Roque, in consequence of the prevalence of a terrible plague at Barcelona, which lasted from the 27th of March until the 13th of November. On the 13th of July in the same year, a solemn procession took place, in which were exhibited the bodies of St. Severus and St. Innocent.

A. D. 1477, in the reign of their Catholic majesties Don Fernando de Aragon and Doña Isabel de Castilla, there broke out a wretched pestilence of leprosy, which may be said to have prevailed epidemically, so numerous were the cases. The duty of examining those affected, and of expelling them from the cities and villages, was a task exclusively im-

posed on the priests, in accordance with divine authority, as laid down in Leviticus chap. xiii. Epidemic pestilence, attended with bubo, prevailed in Italy, and raged without interruption until 1485. Swarms of locusts committed great ravages in various parts of the South of Europe, from the year 1478 until 1482. Within this period, say in the years 1480 and 1481, malignant epidemics appeared in the train of drought and famine in Switzerland and Germany; while putrid fever, accompanied by phrenitis, prevailed in Westphalia, Hesse, and Friesland. There never had been, in the memory of the inhabitants of these places, so many *ignes fatui* as during this period. The harvests also failed, rendering it necessary to obtain supplies of provisions from Thuringia.

A. D. 1482, France, under the fearful reign of Louis XI., after two years of scarcity, became the scene of a devastating plague: it raged in the form of an inflammatory fever, with delirium, accompanied by such intense cephalalgia, that many are reported to have dashed out their brains against the walls of their houses, or to have rushed into the water.

A. D. 1483, there was so great an inundation in Gloucestershire, that all the country round about was overflowed, and many persons were drowned in their beds. The waters did not abate for ten days,—thus preventing the Duke of Buckingham from passing the river into Wales to join the Welsh, who had risen against King Richard III., and consequently being indirectly the cause of the duke's misfortunes and of his violent death. Barcelona was again visited by a pestilence, which lasted upwards of a year. The river Severn in England overflowed; epidemic pestilence was the consequence. During the following years, 1484-85, it extended all over England, having first broken out at Shrewsbury, where, according to the testimony of Dr. Caius, who resided in that town, 960 died in a few days. Some authorities have spoken of this pestilence as having occurred under circumstances extremely favourable to the generation of a malignant disease, for it is said to have first appeared in the

army of the Earl of Richmond, afterwards King Henry VII., upon his landing at Milford Haven in 1485. This army consisted of foreign troops, brought over in crowded transport-vessels. They were described by a contemporary historian, Philip de Comines, as the most wretched soldiery he ever beheld, collected, it is probable, from jails and hospitals, and buried in filth. The disease soon spread to London, where it raged from the beginning of August to the end of October, having assumed a particular type: it was termed 'sudor Anglicus,' or sweating sickness, and proved to be a mortal epidemic. It also prevailed in Ireland. The symptoms were those of a violent inflammatory fever, which, after a short time, caused great prostration of strength. There were also present, oppression at the stomach, and violent headache, accompanied by lethargic stupor, and the body was covered with a profuse fœtid perspiration. The progress of this singular malady was very rapid, a crisis always taking place within the space of a day and a night. The internal heat from which the patient suffered was intolerable, yet every thing cold, or even cool, was certain death. Two lord mayors and six aldermen died in one week. The disease attacked the most robust and strong, and spread without interruption over the entire kingdom, from east to west. In a very short period vast numbers of the population fell victims to this strange epidemic. Many of those who recovered from the first attack were seized a second, and some even a third time. Persons of rank, of the ecclesiastical and civil classes, were not exempt; and great was the consternation when the disease broke out in Oxford. The heads of colleges and the students fled in all directions, and this celebrated university was deserted for six weeks. Three months later, it appeared at Croyland, and carried off Lambert Fossedyke, abbot of the monastery, on the 14th of November. During this period, epidemic pestilence was rife in Germany, Switzerland, Sweden, Denmark, and Egypt.

A. D. 1485. This year, pestilence broke out in Seville, the mortality from which was increased by the heavy rains and

inundations of the subsequent winter. The year following, Saragossa and other parts of the kingdom of Aragon suffered from epidemic pestilence: it was of a peculiar bubonic or glandular kind, the cure of which was attributed to the intercession of Santo Pedro Arbues, one of the first Grand Inquisitors of Spain, murdered by the populace for his cruelties, and afterwards canonized by the papacy.

A. D. 1488, pestilence prevailed in Andalusia, which must have been very fatal, especially in the army which King Don Ferdinand commanded, although no correct accounts of its mortality are on record.

In the year 1489, Barcelona was again visited by a dire pestilence: it broke out on the 3rd of November, and lasted until the 16th of September in the following year. In vol. i. of the 'Biblioteca Halleri' there is a memoir published by Pedro Martyr de Anglesia, in which is noted a certain disease accompanied by a pain in the joints, fœtid ulcers in the mouth, and pustules, which are regarded by some modern writers as the symptoms of the French pox (morbus Gallicus).

A. D. 1490, a bilious remittent fever was rife in various parts of Europe. A putrid fever, supposed by some to have arisen from the unburied bodies in Granada, raged with dreadful violence; by others it was stated to have been imported by some soldiers who came from the island of Cyprus, in which place this kind of fever was endemic.

A. D. 1492. Epidemic variola was unknown to the Indians until it was conveyed to the East by the commercial intercourse of the Dutch: it was also supposed to have been introduced into America by a negro slave of Pamfilo Narvaes, when that Spanish general proceeded to Mexico against his enemy, Hernando Cortés. The inhabitants of Zempoala lost great numbers, and 16,000 Indians fell its victims.

In the year 1493, says Don Vincente Mut, there happened the fifth plague in the island of Mallorca; it was called the plague of Boja, and was so termed from the name of the man who is supposed to have introduced it into the island.

During this period, Barcelona was revisited by pestilence,

which lasted from the 13th of June until the 4th of October. That the venereal disease was not introduced from America into Europe this year, by means of the troops of Admiral Christobal Colon, is a point which has been already demonstrated in history. Astruc exhibits great erudition in showing that the disease was not known before the years 1494 and 1496. In the list of writers of the kingdom of Valencia, furnished by Vincente Ximeno, we learn that a Pedro Pintor was born in that capital A. D. 1420, and died at Rome in 1503: he was physician to Alexander the Sixth, who was also a Valencian, having been born in the part called Xativa. From the historical writings of Pintor, and of contemporary authors, it seems evident, as suggested by Dr. Sanchez, that the venereal disease, during its first prevalence, was a pestilential fever, which was communicable through the genitals, and otherwise; and that at that period there was no discredit or stigma attached to those who were afflicted with it: it was not considered to be *contra bonos mores*. The Valencian author, following up the astrological notions of his time, attributes the disease to the same causes as epidemic plagues or pestilences.

During the vernal equinox of this year, this description of pestilence broke out in the city of Rome, as is gathered from the following quotation: "Talis autem epidemia in urbe Romanâ contigit anno 1493 mense Martii, post introitum solis in primum minutum Arietis." This disease was first noticed in the month of August.

Pedro Pintor, according to Cotunnius, professor of anatomy at Naples, was amongst the earliest writers upon the venereal disease: his work, entitled 'De Morbo Fœdo his temporibus affligente,' was published at Rome A. D. 1500. He attributed the origin of the disease to a conjunction of the planets, and no doubt he was acquainted with the circumstance of the disease being propagated by cohabitation with a diseased person. Several of the inhabitants of Rome were attacked A. D. 1493, and the disease became common there until 1499; it principally attacked the limbs with excruci-

ating pains and pustular eruptions, against which the physicians employed mercurial ointment mixed with lead,—an invention said to be due to a Portuguese. So rife did the pestilence become, that, according to Ruy Diaz de Isla, a native of Andalusia, their majesties Don Fernando de Aragon and Doña Isabel de Castilla gave instructions to their physicians to attend to those stricken with the disease, who were received into the hospital of San Salvador. Great numbers of the first professors and physicians of the land investigated the symptoms of the disease, and after treating it with the thousand and one remedies thought of with but little success, it was considered to be a chastisement from Heaven which befel all constitutions and conditions.

With reference to the origin of this pestilence—the venereal disease, there are various opinions. When it broke out in the French army at Naples A.D. 1495, the French called it 'the disease of Naples,' and said that at the siege of that place there were certain merchants who barrelled the flesh of men slain in Barbary, which they sold for tunny! and that from such food the disease originated. It is certain that cannibals are much infested with the venereal disease. It was known in England before 1162, and was called 'Brenning' or 'Burning.' This appears from Bishop Winton's records of the public stews. The disease is well described by one Arden, who was surgeon to Richard II., in 1156, in a work expressly written on the subject.

A.D. 1495, King Don Fernando convoked the Cortes in the city of Tarragona, in consequence of the pestilence raging at Saragossa: it was attended by buboes, carbuncles, &c.; and in the following year, 1496, it appeared in a petechial form among the soldiers employed in Granada. Syphilis also prevailed at Naples amongst the troops of Charles VIII.

In the year 1496, an epidemic ulceration, as it was then called, of the skin (epidemic scurvy), invaded the inhabitants of Germany, Portugal, Ireland, and other countries.

A.D. 1497, Barcelona was again visited by epidemic pesti-

lence: it made its appearance about the 18th of July, and continued until November. Gaspar Torella, a native of Valencia, physician and domestic prelate to Alexander VI., wrote à work upon the Morbus Gallicus, which was printed at Rome, according to Haller's account, in the year 1497. Astruc makes mention of another work, entitled 'Ex Coitu cum Impurâ Muliere.'

In the year 1498, Francisco Lopez de Villalobos, physician to Charles V. and to his son Philip II., published in Salamanca a folio work entitled 'Sumario de la Medicina.' Juan de Banos, in the first ten numbers of his 'Voyages of the Portuguese to the East Indies,' gives a circumstantial account of a pestilence which seized on the crews of their fleet after they had passed the Cape of Good Hope. The malady commenced with erysipelas and putrescence of the gums, so that those who were attacked were unable to take food; their bodies were racked with excruciating pains, and the stench from them was intolerable. This disease was evidently scurvy.

A.D. 1499, a great plague prevailed in Britain, carrying off thousands; 30,000 were reported to have perished from it in London alone. The king found it advisable to retire with all his Court to Calais. In Brussels, epidemic pestilence victimized daily 500 persons; mould-spots (signacula) were observed in Germany and in France. There was a great mortality from murrain in cattle in Germany, and very extensive destruction of all vegetation by blights and caterpillars. The inhabitants of both France and Germany suffered greatly from severe epidemic disease during this period; it assumed a glandular form, and continued until the year 1503. This pestilence, says Schenckius, was accompanied in some parts of Europe by famine, which was followed by a most vehement intemperature of the seasons; for a winter preceded, so terribly severe as to kill the brute creation everywhere, and the heat of the summer was of such cruel intensity that trees were set on fire by the heat of the sun: in fine, this year may be said to have

been the commencement of a century of putrid malignant diseases,—a century replete with grand phenomena affecting human life in general. In the year 1501, epidemic pestilence, says Luis Lobera de Avila, made its appearance at Barcelona; it began about the middle of October, and spread to various other parts of Spain. The disease, according to the superstition of the times, was attributed to a celestial influence. During this period, the use of guaiacum, or holy wood, in the treatment of the venereal disease, was discovered: it was afterwards introduced into Italy about the year 1517, where its utility was first made known by a Spanish presbyter. Plague again visited Barcelona, and sadly crippled its commerce. The viceroy of Sicily prohibited the entry of shipping coming thence.

In the year 1504, China was nearly depopulated by pestilence. There was also a great mortality in Ireland from epidemic disease; and plague, about the same period, raged in Spain, in which country a severe earthquake was experienced on the 5th of April: it did a great deal of mischief, especially in Andalusia. About the same period a dreadful shock was felt at Lisbon, which continued for eight days, overthrowing several churches and more than 1500 houses, under the ruins of which upwards of 20,000 persons met their death. Several of the neighbouring towns were swallowed up, with vast numbers of their inhabitants. The year following, two comets were observed. Spotted fever was rife all over Europe, and pestilence prevailed in Lisbon.

In the summer of the year 1505, the sweating sickness again reared its head in England; the disease first broke out in London: it was of a much milder form than that which prevailed in the year 1485; it disappeared towards the close of the autumn, and appears to have been confined to England: no remarkable phenomena were observed here during this pestilence; it was otherwise, however, in other parts of Europe. The summer was wet, and the winter following a severe one; comets were seen

in this and the following year, and an eruption of Vesuvius took place.

A.D. 1506. From the 15th to the 26th of January, there blew a violent storm from the south-west, which drove the King of Castile, Philip of Austria, with his consort Joanna, from the Netherlands to Weymouth; and as, some days before, a golden eagle falling from St. Paul's Church in London had crushed a black eagle which ornamented some lower building, evil predictions were promulgated among the people respecting the fate of this son of the Emperor.

Spain suffered greatly from severe pestilence in the year 1507, writes Don Miguel Martinez de Leyva,—especially Barcelona, which place may be said to have been scarcely ever free of pestilence. In the diary of Ramon Vila it is stated that the pestilence was at its height in the months of April, May, June, and July. On the 14th of August letters were addressed to the governors of Sicily and Mallorca, informing them that, in consequence of the cessation of the pestilence at Barcelona, the royal family and the nobility had returned to the city. The Portuguese physician Pedro Bayro, who had had much experience in foreign parts, and of whom Don Nicolas Antonio makes memorable mention, wrote a work entitled 'Novum ac perutile Opusculum de Pestilentiâ et de Curatione ejusdem per utrumque regimen, præservativum, scilicet, et curativum. Turin, 1507.' In this and the following year, 1508, mention is made of swarms of locusts in the neighbourhood of Seville; in fact, they are reported to have overrun Spain. Epidemic pestilence followed, especially at Cadiz. Constantinople was nearly depopulated by pestilence, which spared neither age nor sex. Germany also suffered from epidemic encephalitis and malignant pneumonia.

A.D. 1510, a violent and universal catarrh prevailed over Europe; in France it was called 'Coqueluche' (monk's-hood), from the practice of covering the patient's head with a cap to protect him from the air, which was considered very detrimental in this disease. So general was the malady

in France, that historians assure us that but few of the inhabitants escaped.—A.D. 1511 a plague, and 1513 a malignant dysentery occurred in Verona.—A.D. 1515, Spain was revisited by epidemic pestilence. A severe earthquake was felt in Denmark, which threw down the steeple of the great church in Copenhagen, and did much damage besides.

The sweating sickness again made its appearance, A.D. 1517, in England, having broken out in London, which was crowded with poor. From a scarcity of artizans about this time, it happened that great numbers of foreigners emigrated from Genoa, Lombardy, France, Germany, and Holland to London, and were engaged in the most lucrative branches of employment. This circumstance appears to have increased the prevalent distresses of the lower orders, and a great insurrection of English artizans followed. The popular commotion was, however, soon suppressed without any considerable damage; and Henry VIII., on a solemn day appointed at Westminster for passing judgment upon the prisoners apprehended on the occasion of the riots, bestowed pardon on them, for he saw into the causes of their discontent, and very soon after caused restrictive alien laws to be enacted. The higher classes enjoyed no immunity from this pestilence; their ranks were thinned, and no precaution seemed to avert death from their abodes. Ammonius of Lucca, a scholar of some celebrity, private secretary to the king, was cut off, after having boasted to Sir Thomas More, only a few hours before his death, that by moderation and good management he had secured both his family and himself from disease. Lords Grey and Clinton fell victims to this malady, as did many knights, courtiers, and officers. So rapid and violent was this disease in its course, that it carried off those who were attacked in two or three hours, so that the first shivering fit was the announcement of death; many who were in good health at noon-day were corpses by the evening. This disease arrived at its height about seven weeks after its first appearance, and continued its ravages for six months. Many learned men at Oxford

and Cambridge were carried off by this terrible disease, at a time, too, when the sciences were much cultivated and were flourishing. The town of Calais was visited, and, what was very remarkable, none but the English residents there suffered; the Frenchmen enjoyed an immunity from the disease, which did not even spread to any other part of France,—at least there is no account of its having done so. This same year Germany was visited by a brain fever—an epidemic encephalitis. An earthquake caused great destruction in Suabia. Another disease of much more importance appeared in Holland, lasting only eleven days,—an epidemic œsophagitis (diphtherite) it was considered to be, and from its dangerous and inexplicable symptoms it spread terror and horror around; it was so malignant and rapid in its course, that unless assistance was procured within the first eight hours, the patient was past all hope of recovery before the close of the day. Sudden pains in the throat, with violent oppression about the region of the heart, threatened suffocation, and at length actually produced it. From the journal of Tyengius it would appear that this epidemic extended towards the south, and in the same summer appeared at Basle, when in the space of eight months it destroyed 2000 persons. Small-pox raged with great mortality at this time in Hispaniola.

A. D. 1518. Marselio Ficino, in his work on the plague, written according to Haller in 1518, describes the treatment that was adopted, consisting chiefly in the application of cupping-glasses below the carbuncles. In the city of Cascante, in the kingdom of Navarre, there broke out an epizootic, which caused great destruction among the horses of the regiments quartered there; the principal feature of the pestilence was extensive apostemes on the head and throat, attended with an insatiable thirst and hectic fever. About the period of the earthquakes which were experienced in Xativa A. D. 1517, epidemic disease prevailed in many parts of Spain: it extended subsequently to the city of Valencia, and caused great mortality in 1519. The public authorities,

because of the general prevalence of disease and the consequent mortality, withdrew to Murviedro.

A. D. 1521, in June, rogatory prayers were offered up in consequence of the dreadful pestilence which ravaged Barcelona. The plague raged at Dresden also.

The last plague of Mallorca, of which notice is taken by Don Vincente Mut, occurred in the year 1523. Great numbers were carried off by it. The city of Valencia also suffered from a similar pestilence, which was attributed to atmospheric poison. The year following, 1524, a bubonic pestilence, as it was termed, raged with great fierceness, and carried off 50,000 of the inhabitants of Milan. The plague was also rife in the city of Xativa, and the greatest pestilence from which the city of Seville ever suffered, occurred about this time, and persisted for some years.

A. D. 1525, the sweating sickness, which had been for some time raging in England, extended to other parts of Europe, and in the course of five years spread over Lower Germany, the Low Countries, Holland, Zealand, Brabant, Flanders, Denmark, Norway, and France. So rapid was this disease, that on making its appearance in any place, it would seize on 600 and upwards in a day, while of this number, when so seized, rarely more than six recovered, so destructive was it. The distemper was generally supposed to have been caused by some poisonous quality of the atmosphere.

A. D. 1527, mention is made by Franco of a pestilence which broke out at Xativa. Great numbers of the Imperial army of Italy were destroyed by pestilence after the sacking of Rome; it also carried off thousands at Wurtemburg. Hailstorms were prevalent about this period in Italy. Cardinal Gastaldi relates that, in the following year, 1528, the kingdom of Aragon was visited by severe plague, the cause of which was superstitiously attributed to the ringing of the great bell of Velilla.* Deadly fevers were rife in London,

* The miraculous bell of Velilla, a little village in Aragon, nine leagues from Saragossa, about this time (the death of Ferdinand of Aragon) gave one of those prophetic tintinnabulations which always boded some great calamity to the coun-

which, in the autumn, degenerated into sweating sickness: it invaded Cork, in Ireland, and Italy also. From this period (1528) until 1534, there was experienced much suffering from famine, preceded by moisture and great heat: repeated inundations occurred, and continuous summer fogs prevailed in Italy. Petechial fevers were very destructive: the French army before Naples lost great numbers from spotted fevers. The 'trousse galante' carried off, it is said, a fourth part of the population of France during this period: this disease was attributed to elemental disturbances; the spring was cold, and the summer wet, so that the growing corn was destroyed, and a dire famine was the consequence throughout France, it being more distressing than the period of scarcity in the time of Louis XI. on account of its long persistence; for the failure of the harvest continued for five years in succession, during which period all natural order of the seasons appeared to be reversed. A damp heat prevailed in the autumn and in winter. The course of all vegetation was changed; scarcely had the trees shed their leaves in autumn, when they began to bud again and the fruit-trees to bear blossoms. The disease was a highly inflammatory fever, which proved fatal in a very short time, very frequently in the space of a few hours. In many cases of those who recovered, the hair and the nails dropped off, and convalescence was tedious, leaving the constitution much shaken. These symptoms were evidently the same as those observed in what was termed the 'Dandy fever,' which prevailed in later times in France and in the West India Islands

try. The side on which the blows fell denoted the quarter where the disaster was to happen. Its sound, says Dr. Dormer, caused dismay and contrition, with dismal "fear of change," in the hearts of all who heard it. No arm was strong enough to stop it on these occasions, as those found to their cost who profanely attempted it. Its ill-omened voice was heard for the twentieth and last time in March, 1679. As no event of importance followed, it probably tolled for its own funeral. See the edifying history, in Dr. Diego Dormer, of the miraculous powers and performances of this celebrated bell, as duly authenticated by a host of witnesses.—'Discursos Varios,' pp. 198–244. Prescott's 'History of Ferdinand and Isabella.'

in the year 1828. During this period drought, swarms of locusts, and fiery meteors were observed in the north of Germany.

A. D. 1529, epidemic pestilence prevailed and carried off many distinguished persons in England. Contemporaries agree in their accounts of the dreadful weather all over Europe; the winter, however, was mild, and vegetation particularly advanced; violets were gathered at Erfurt in the middle of February: throughout the spring and summer wet weather continued to prevail; constant torrents of rain deluged the fields, and misery and famine spread in every direction. A heavy rain of four days' continuance in the south of Germany, in June, was called the 'St. Vitus' Torrent,' and was considered a hitherto unheard-of event; whole districts were under water, and many perished therefrom. An universal storm occurred again in August, occasioning great floods, especially in Thuringia and Saxony: the sun was rarely seen through the dark clouds during the latter part of summer and the whole of the autumn: with the exception of some suffocatingly hot days, the weather remained gloomy, cold, and wet, so that the people fancied they were breathing the foggy air of Britain. Violent remittent pestilence appeared in Amsterdam: Tyengius describes it as having broken out on the 20th of September, in the afternoon, during a misty foggy state of the atmosphere: it committed great ravages for the period of five days, when it disappeared as suddenly as it arose. In various parts of the German States the birds of the air became diseased; in the neighbourhood of Freyburg, in the Breisgau, they were found dead in great numbers, scattered under the trees, with boils as large as peas under their wings, indicating a disease that no doubt extended far beyond the Rhine. The river fish, from some cause, became unfit for food, and the sweating sickness broke out at Hamburgh, where it destroyed daily from forty to sixty persons. This pestilence lasted about a fortnight at Hamburgh, and 2000 of its inhabitants fell its victims: it afterwards spread all over

Germany; it prevailed at Lubeck, Stettin, and in Zwickau. Earthquakes were experienced in Italy; blood-coloured rain fell at Cremona; a comet was seen in July; and disease prevailed among the porpoises in the Baltic. The famine in Germany this year is described by various authorities as being frightful. Suabia, Lorraine, Alsace, and the southern districts bordering on the Rhine suffered especially: in those places the misery was equal to that in France. In the Venetian territory, thousands perished from hunger, as was the case all over Upper Italy. In Pomerania, a peculiar kind of debility or lassitude affected the inhabitants: in the midst of their work, and without any conceivable cause, persons became palsied in their hands and feet, rendering them incapable of any exertion. About this period a pestilence, which was called 'the English disease,' broke out at Brussels, and carried off many of its inhabitants.

## CHAPTER V.

### FROM A. D. 1530 TO 1613.

A. D. 1530, the sweating plague raged in Germany, and epidemic scurvy prevailed in Denmark: two years after, various parts of the world were visited by what were called spotted or petechial fevers. In the month of March, pestilence broke out in Aragon and in the city of Saragossa: Italy and Spain suffered also from a gangrenous sore-throat. In October, the Tiber overflowed, and the dykes in Holland were suddenly burst by inundation, to the destruction of much property and of many lives.

A. D. 1531. A comet was seen this and the following year. The Tagus overflowed in the month of February, destroying nearly the half of Portugal. Pestilence followed, and devastated several cities, especially Lisbon, as recorded by Cardinal Gastaldi.

A. D. 1533, the kingdom of Aragon suffered much from the great want of corn. Amongst the preventive measures taken, was the bull of Pope Adrian VI. against forestallers. Notwithstanding all the measures that were adopted, the want of food (what there was even being of bad quality), with the excessive heat, &c., caused pestilence, which was very fatal, especially in the city of Huesca, and, as it was said, only terminated on the intercession of the Virgin *de los Dolores*. The year following, 1534, the city of Narbonne suffered from plague. Epidemic disease raged in Cork and also in Dresden A. D. 1535. England, the year following, suffered from pestilence, which continued for three years, 1537, 1538, and 1539. Mortal dysentery prevailed all over Europe. In the latter year, the river Lea in England was nearly dried

up, and pestilence carried off great numbers in its vicinity. The summer in Europe was so hot, that in many parts the woods took fire spontaneously. The South of Europe was infested with swarms of locusts, and plague was rife in Hungary during the war of the Turks in that country.

The famous Ruy Diaz de Isla published this year (1537) one of the best works which had hitherto appeared on the venereal disease. In order to avoid giving offence to any nation by using the popular names, such as the French disease, the Neapolitan, &c., he denominated his work, 'A Treatise of All Saints against the serpentine disease which came from the Spanish island Hispaniola; a Treatise compiled in the great and famous Hospital of All Saints, in the renowned city of Lisbon.' Its author, following the opinion prevalent in his time, attributes the origin of this disease to Hispaniola, where the natives call it 'le llamaban, buainaras, bipas, taynas olias.' The reason assigned for using the appellation 'serpentine' is, because the disease was considered to be analogous to the foulness of that reptile.

A. D. 1541, pestilence raged with great violence in Constantinople, and carried off vast numbers. The year following, 1542, clouds of red locusts, which came from Turkey, passed over Sclavonia, Croatia, Austria, and Italy, and alighted in Spain in such numbers that they destroyed every green thing. About this period the celebrated Andres Laguna proposed for the cure of the plague an infusion of carlina (white thistle), a drachm of which, after it had been infused, was to be taken daily.

A. D. 1543, epidemic pestilence visited the city of Metz, causing a frightful mortality. Two years after, 1545, a pestilential epidemic, similar to that which prevailed so extensively A. D. 1528, called 'la trousse galante,' made its appearance in various parts of Europe, slaying the robust and young; it was equal in awfulness and mortality to the pestilence which in the days of Moses destroyed the first-born of Egypt: the disease first appeared in Savoy, and over a great part of France; it continued until the following

year, 1546. Parè, and a Flemish physician, Sanders, describe the symptoms of this malady, which was attended, as in 1528, with the loss of the hair and of the nails: its attack was rapid and very fatal. Patients at the onset suffered from an overwhelming weight in the body, and a violent headache, which soon deprived them of all consciousness; and stupor ensued, with relaxation or loss of power of the sphincter muscles: in most cases an eruption was observed, of which no mention is made in former outbreaks of the malady; Sanders does not, however, distinctly state its nature. 10,000 English residents died from pestilence in the course of this year and the year following at Boulogne. The bubonic plague made its appearance in the Netherlands.

A. D. 1547, heavy rains inundated Tuscany. Pestilence raged all over Europe, especially in England, Holland, and Germany. The city of Dresden also suffered from it. Mould-spots and red water were observed in the north of Germany. The year following, pestilence continued in England and also in Prussia, causing great mortality in both countries. The kingdom of Murcia suffered from epidemic disease, and the question arose, as had been frequently the case before, whether the disease was contagious or not: great difference of opinion thereon prevailed. Portugal also suffered about this period from pestilence.

A. D. 1549, vast numbers of caterpillars appeared in Germany and destroyed all the herbage; they were followed by pestilence, especially in the North, where petechial fever destroyed great numbers.

An epidemic catarrh, as well as dysentery, raged in France from 1550 until 1553. There had been great dearth in various parts of Spain, and pestilence raged in Valencia: it was attributed to the effects of damaged grain, which had been introduced for the support of the inhabitants of that city. Don Pedro Jacobo Esteve makes mention of these circumstances, in his commentary entitled 'In Hippocratis librum secundum Epidemiarum seu popularium morborum Commentarium.' Seville also suffered from

pestilence. It was about this period that the last attack of sweating sickness occurred in London; stinking mists were first experienced on the banks of the Severn, which were overflowed. On the 15th of April, 1551, the disease again broke out at Shrewsbury, gradually extending in the course of the stinking mists, or fogs, all over England. In the month of July it reached London, where the mortality was very considerable: it is stated that 120 died of the disease in a day in the city of Westminster. Two sons of Charles Brandon, both Dukes of Suffolk, were carried off by it. This epidemic subsided about the month of September in England, and was noticed as being the fifth and last sweating sickness in this country.

Caius (John) published his 'Booke, or Counseill against the disease commonly called the Sweate, or sweatynge sicknesse, very necessary for everye personne and much requisite to be had in the hands of all sorts, for their better instruction, preparacion and defence against the soubdin comyng and fareful assaultyng of the same disease (1552).' About the same period, a mortal pestilence raged in Messina, blood being in many instances discharged from the pores of the body of those who were affected, three days before death. A similar disease prevailed in Paris; in fact, epidemic pestilence may be said to have ravaged various parts of Europe, especially Hungary, Transylvania, &c.

Senertus informs us, that pestilence not only overran Europe, but almost the whole inhabited world. The spring of the year 1551 was dry and cold, and the summer wet; inundations, earthquakes, meteors, mock-suns, great tempests, and summer fogs were noticed: malignant fevers prevailed in Suabia, and epidemic influenza was rife in Spain. The two following years, malignant fevers overran Germany and Switzerland; scurvy prevailed in Denmark.

A. D. 1555, the summer was hot, and heavy rains fell: febrile diseases became very prevalent in England and France, and continued with redoubled violence during the succeeding summer, which was also excessively hot and dry:

excessive commotions of the elements and severe seasons marked this period. The city of Valencia suffered from epidemic variola. Don Miguel Juan Pasqual, an eminent physician, makes mention of this pestilence in his work 'De Febre Pestilenti.' About this period, according to Cardinal Gastaldi, when the Emperor Charles V. invaded the French territories, pestilence destroyed great numbers of the peasantry and of the Spanish soldiery.

A. D. 1556, a whole province of the mountainous part of China was in a moment absorbed into the earth; all the towns with their inhabitants were buried in the ruins, and an immense lake of water took its place, which remains to this day. A comet was seen this year. Vienna about this time suffered from epidemic pestilence, as also did Holland the year following; the disease continued until 1558. This disease commenced in the form of influenza in various parts of Europe, and in France, Italy, and Germany; Spain also suffered from its violence, which was greater in some countries than in others, viz. Florence and Tuscany. In France, malignant dysentery was the most predominant malady; agues in Holland, and petechial or spotted fever in Spain; the last-named disease was as fatal as the true plague. A Spanish writer, Andres Laguna, physician to Charles V., Philip II., and Julius III., wrote a work on this pestilence, (as did many other eminent physicians,) entitled, 'Discurso breve sobre la Cura y Preservacion de la Pestilentia.' In going minutely into the symptoms described by these authors, we recognize all the symptoms of bilious remittent or yellow fever, synocha, &c., as prevalent now-a-days, and termed 'Andalusian fever.'

A. D. 1557. A new infirmity, as it was then considered to be, broke out this year in Spain, which nearly depopulated the peninsula: it continued with great destruction until 1570. This new pestilence was supposed to have originated with the Saracens, after the war of Granada, that is, after King Don Fernando de Aragon, and Doña Isabel, Queen of Castile, had conquered the city of Granada. That this

disease originated with the Spanish Arabs, was known from the fact that all their disbanded soldiery communicated the disease to the inhabitants of the cities and towns, as Luis de Torro relates in his work entitled 'De Febre Puncticulari,' &c., to which type this pestilence belonged.

A. D. 1558, the city of Murcia suffered from pestilence, on account of which the bishops and principal inhabitants deserted the city. This fatal epidemic extended to all parts around Murcia and to the kingdom of Valencia. The Jesuit Fathers assumed the temporal as well as the spiritual care of the plague-striken. Many of the attendants fell victims to the disease, amongst whom was the celebrated Dr. Pedro de Cabera, son of the Viscount of the same name, together with the padre Marco Antonio Fontoba.

Barcelona also at this period suffered from mortal pestilence; it commenced in January, and continued unto July, when it ceased.

A.D. 1563, there was a great dearth of corn and other provisions in London; famine and disease were the result, and 20,000 persons perished in consequence. France suffered from pestilence, and Barcelona was again visited by it. Burgos—a city in which all the reverend Fathers of the Society of Jesus, who administered the rites to the dying, perished,—was nearly devastated by plague, as noticed by Franco; in fine, many European cities suffered more or less during this year from epidemic disease; among which were, Frankfort, Magdenburg, Dantzic, Hamburgh, Wismar, Lubeck, Bostack, and Dresden.

A. D. 1564, an epidemic prevailed in the form of fatal quinsies and spotted fever, in various parts of Europe. Barcelona again suffered from pestilence, which broke out in the month of June, and lasted unto November following. The city of Saragossa also suffered from a cruel epidemic, from May unto December, during which period there died 10,000 persons in the city alone: it was supposed that the disease was introduced from France by means of the clothes

of persons who had died there from the disease. Dr. Porcell, who was singularly successful in treating the disease, wrote a work on it, and dedicated it to Don Philip II.; it was entitled 'Informacion y Curacion de la peste de Zaragoza, y preservacion contra peste en general, por Juan Porcell Sardo, Doctor en Medicina, Zaragoza.' The symptoms of this malady were, intense cephalalgia, sleeplessness and delirium, vomiting of bilious matter, urgent thirst, nausea, accompanied by pain in the stomach: dissection showed nothing particular in the humors; the gall-bladder was extremely large, and distended with black viscid bile,—sometimes, however, it was found empty. There was yellowness of the skin, and a similar tinge was observed internally.

A. D. 1565, a pestilential epidemic prevailed in France, in which bleeding was said to have been fatal to many; the disease raged with great severity at Lyons. Charles IX. having inquired of his physicians the most judicious mode of treatment, they expressed their disapprobation of venesection. Seville and various other parts of Spain suffered from a similar disease, which, however, was not very fatal; great numbers are said to have owed their preservation to the use of treacle, immense quantities of which the Catholic king Philip II. sent to the Christian king Charles IX. Schenckius describes this pestilence as having been preceded by a sharp frost in December, the distemper having commenced in January: the air being filled with gross vapours was supposed to have given rise to this malady.

Wierus informs us, that this pestilence afflicted all mankind; it was preceded by small pox and measles; it proved very fatal, depopulating towns and cities, among which were Constantinople, Alexandria, Leyden, London, Dantzic, Vienna, Cologne, and the whole tract of the Upper Rhine, even unto Basle. The malady was accompanied by glandular tumors in the neck; it was an aggravated form of quinsy, proving fatal to many in one day. The sick were taken with vomiting, followed by a swelling of the tongue,—afterwards loss of speech and difficulty of

swallowing anything, even in a liquid form; suffocation and death soon followed.

A. D. 1566, a pestilence began at Comorra, called in Latin 'Morbus Hungaricus' and 'Lues Pannonica.' The Emperor Maximilian's army, while carrying on hostilities against the Turks, lost many thousands by this disease. The symptoms were as follow:

It began generally in the latter part of the day, towards evening, with cold shiverings, succeeded in a short time by great heat and insatiable thirst, lasting for some hours. There was pain in the head and stomach. On the second, or third day at furthest, delirium set in. The tongue was dry and black; the teeth were covered with sordes: some spit blood; others suffered from diarrhœa. The sufferers generally were covered with spots like flea-bites, chiefly on the breast. Stoppage of the urine was considered a fatal sign. A similar spotted fever was also prevalent at Paris the year following, 1567, carrying off great numbers; it raged in many parts of Europe, continuing for three years: it subsequently degenerated into a dreadful pestilence—the true plague, and prevailed for the four following years.

A. D. 1568, Seville was visited by epidemic pestilence. Dr. Andres Zamudio de Alfaro wrote a treatise on this malady, as did also Francisco Franco, a native of Xativa, in the kingdom of Valencia, physician to his Serene Highness the King of Portugal. Franco in his work, alluding to the celebrated poet Ausias March, whose work he says should be written in letters of gold, quotes the following therefrom:

"Merge scient no te locas per joch
Com la calor no surt à part estrema
Lignorant veu que lo malat no crema
He jutial sa puix que mostra bon toch,
Lo pacient no podra dir son mal
Tot aflebit ab llengua mal diserta
Gest è color asats fan descuberta
Gart de la fan que tant com lo dir val."

During this year, 1568, the sea broke down the dykes, and almost all Friesland was under water. Seventy-two

villages were inundated, and more than 20,000 persons lost their lives. Pestilence ensued.

A. D. 1570, epidemic pestilence was prevalent all over Spain; it was similar to the maladies which prevailed some years previously, and were called 'febris diaria,' and another, called sudorific fever, of which Luis de Torro speaks: "Nonne pestilens aliquando diaria et nostris diebus quædam appellata sudorifica visæ sunt, quarum nec nomen quidam prisci audierunt?" It was carried to America through our commercial intercourse, and prevailed with great mortality in the city of Mexico. Dr. Franesco Bravo, a native of Ossuna, a celebrated physician, wrote an extensive work on this subject, entitled 'Opera medicinalia, in quibus quam plurima extant scitu medico necessaria, in quatuor libros digesta,' which he dedicated to Don Martin Enriquez. During this year, A. D. 1570, epidemic pestilences in the shape of measles, erysipelas, malignant fever, &c., prevailed in various parts of the world. 400,000 persons were drowned in Holland by the inundation caused by the breaking down of the dykes. In Poland the plague, and in Basle a malignant fever, were especially fatal.

A. D. 1572, the city of Augusta de Alemania was visited by a pestilence, as recorded by Agricola. Dresden suffered from plague.

A. D. 1574, a remarkable aurora borealis was observed on the 14th of November. Pestilence, causing great mortality, prevailed in various parts of Spain and Italy; and during the months of September, October, and November of the same year, epidemic disease was rife in London: it continued during the following year, and prevailed in Verona, Venice, Africa, the Levant, and in Egypt: it persisted for three years, until 1577. In the latter year, pestilence occurred at Oxford, owing to some prisoners having been brought for trial in a filthy state, from the foul condition of the cells: a stench arose, which was supposed to have emanated from their persons. Some of the judges and justices, among whom was Robert Bell, Lord Chief Baron, and

many of the jurors, with the high sheriff, died; and from the 6th to the 12th of July it is reported that 510 persons died from the infection: it was termed in consequence 'the black assizes.' The symptoms were described as consisting of a violent pain in the head, with delirium; distress in the abdomen, and general prostration of strength. Some were of opinion that this disease was generated by the confinement of the prisoners, and that although they themselves did not suffer from it, they communicated it to others by contagion: others were of opinion that the disease was not in any way contagious.

The Court was held in a yard of the castle, a short distance from the river Isis, the banks of which are low. It is recorded that a great damp breath or fog existed at the time, the weather being excessively hot and sultry. The physicians could not give the disease a name: although it did not appear to them to be the true plague, it was as destructive as that pestilence generally is.

A. D. 1579, the summer was moist and rainy, and was succeeded by a cold dry north wind; the winter was open and chilly. An epidemic catarrh pervaded all Europe: it began in Sicily, and showed itself in Italy, Venice, and Constantinople: it infected Hungary, Bohemia, and Saxony, and it afterwards prevailed in Norway, and raged in Sweden, Poland, and Russia. The symptoms were, violent fever for some days,—four or five generally,—with pains in the head and chest, and severe cough, terminating in profuse perspiration. 4000 persons died of it in Rome, 8000 in Lubeck, and 3000 in Hamburgh; and great numbers were carried off in other places by epidemic pestilence. Whilst this fatal catarrh ravaged Europe, one of the most destructive plagues ever known began at Grand Cairo. Prosper Alpinus reports the deaths from November, 1580, to July in the following year,—a period of eight months,—to have amounted to 500,000. It has frequently been observed that epidemic anginas, catarrhs, measles, &c., generally precede great and destructive plagues or pestilences,—a fact that

has been frequently noticed in our day. The terrible pestilence cholera, of 1817 and subsequent years, was preceded by influenza, &c. For the constitution of the seasons, by which these diseases are caused, becomes increased in its malignancy and powers by the repeated accumulation of the peculiar poison, and it consequently induces the highest gradation of disease, pestilence, or plague,—all these distempers being essentially similar, differing in appearance only, as modified by climate, season, &c., and also by the duration and energy of various efficient causes. This year the plague raged at Marseilles.

A. D. 1580, a comet was seen. In the month of August, epidemic catarrh broke out in Spain, and raged with such violence at Madrid, that it almost depopulated the city. Variola prevailed principally amongst children, to whom it was fatal in the city of Seville. The year following, this city suffered from plague.

A. D. 1582, epidemic pestilence prevailed in various parts of Spain; Cadiz suffered greatly. Dr. Juan de Carmona, a celebrated physician and philosopher, wrote a work on the disease, entitled 'Tractatus de Peste ac Febribus cum puncticulis, *vulgò* tabardillo.' In this work, which was dedicated to the Inquisitorial Tribunal of Llerena, the author endeavoured to show that the puncticular fever was unknown to the ancients, and that bleeding from the arm was of great service in pestilential fevers: he states that by this method he treated more than 10,000 persons, and always with fortunate results, provided the practice was not contra-indicated by the presence of buboes, carbuncles, and menstrual or hemorrhoidal fluxes; he did not find the celebrated bezoar stone so efficacious as it was represented to be, although it was in great repute amongst the practitioners of Seville and other parts.

A. D. 1582, an earthquake was felt at Peru for 500 leagues, some time after the city of Arequipa was overthrown. Pestilence continued to prevail in various provinces of Spain the following year, 1583, with carbuncles, anginas, &c. Fran-

cisco Valles speaks of leprosy in his work entitled 'De iis quæ scripta sunt phisice in libris sacris, sive de sacra philosophia.' Plague, famine, and war destroyed numbers, this year, in Flanders, and epidemic pestilence ravaged Moravia, and was rife in London, Germany, and Holland. Egypt and Rome also suffered from famine and disease.

A. D. 1585 and 1586, the winters were severe, and the summers dry and hot; famine ensued; universal catarrh with general pestilence followed, and prevailed all over Europe. The plague raged at Narva and Revel, in Livonia, in the Gulf of Finland, 59° of north latitude: 6000 persons died at Revel. Thuanus considered that the disease arose from the effects of war and the inclemencies of the weather —"a belli incommoditationibus et cœli inclementiâ." In the archbishopric of Toledo small-pox broke out: the disease was remarkable, inasmuch as almost all who were attacked were old persons, according to Andres de Leon; 'en su practico de morbo Gallico.' Plague raged in Dresden in both these years. On the 9th of July in the latter year, 1586, a severe earthquake was felt, which shook Lima, and ran 170 leagues along the coast, and 50 leagues across the mountainous parts.

A. D. 1587, epidemic small-pox broke out in the city of Madrid: 5000 persons and upwards died of it in a short time. The two following years, 1588 and 1589, a pestilence, similar to that of 1583, appeared, and lasted three years: it committed frightful devastation in Seville and its neighbourhood. In the latter year, plague prevailed in Barcelona, and lasted from June to December; it was supposed to have been imported from France.

A. D. 1590. A comet was seen this year during the reign of Philip II. The city of Valladolid was attacked with petechial pestilence. The celebrated Francisco Valles de Covarrubias depended principally on local depletion by means of cupping-glasses for its treatment. A dispute arose this year among the Italian physicians as to the virtue of blisters in the treatment of the plague which was prevailing there.

During the summer of 1592 the drought was extreme, and the autumn was sultry and variable. The river Thames was fordable at London, and epidemic pestilence destroyed 18,000 persons in that city. Various other parts of England also suffered from it, especially Shropshire, where it was very fatal. The city of Dresden suffered from plague in this and the preceding year, 1591.

A. D. 1593, the island of Malta was ravaged by plague: the year following, the city of Seville was visited by pestilence, which, according to the authority of Rosell and Bezon, lasted for the four consecutive years, 1594-97. Pestilence was also rife in many provinces of Spain, especially in the year 1596. A comet was observed.

Malignant fevers prevailed in England about these periods, and London was devastated by pestilence in 1599, as was also Lichfield, Leicester, Kendal, Carlisle, Penrith, and Richmond. Pegu, in Asia, was nearly depopulated the same year by famine and disease. Constantinople suffered from pestilence: seventeen princesses, sisters of the Sultan Mahommed, were carried off, three dying in one day. A mortal pestilence destroyed much cattle in Italy, and plague carried off 70,000 of the inhabitants of Lisbon and Spain.

A. D. 1600 and 1602, great numbers perished in Muscovy; it is recorded that 500,000 died of famine and plague, and in Livonia 30,000 are said to have been carried off. In the latter year, 1602, the summer and winter were cold and dry. Catarrh and acute fevers epidemically scourged the human race; great famine prevailed for a series of years, the crops having failed for several years successively. In Muscovy the plague raged for three years; parents devoured their children; and cats, rats, dogs, &c., were also used for food: all the ties of nature seem to have been forgotten during this dreadful suffering; the powerful overcame the weak, and human flesh was exposed for sale in the shambles in the markets. Multitudes were found dead with their mouths filled with straw and other filthy substances. Sacred history affords us similar examples of wretchedness,—parents devouring their children (2 Kings vi.); it occurred

during the siege of Samaria by Ben-hadad, king of Syria, (verses 28, 29,) "And the king said unto her, What aileth thee? And she answered, This woman said unto me, Give thy son, that we may eat him to-day, and we will eat my son to-morrow. So we boiled my son, and did eat him: and I said unto her on the next day, Give thy son, that we may eat him: and she hath hid her son." Similar disasters happened at the siege of Jerusalem by Nebuchadnezzar (Ezekiel v. 10).

About this period, 1600, the city of Granada was visited by pestilential epidemics, which were very fatal; Fernando Bustos gives an account of them. Gallicia suffered from epidemic small-pox.—A.D. 1601, plague visited the city of Seville; it carried off many of the higher classes.—A.D. 1602, in the middle of March, pestilence broke out in the city of Jaen; the principal symptoms were those of the true plague, attended by buboes and glandular swellings: this pestilence soon extended to Seville, Madrid, Valladolid, Burgos, Saragossa, Toledo, Cordova, Malaga, Velez, Ecija, Antequera, Granada, Andujar, and to other places.

A.D. 1603, plague prevailed in England; 36,000 of the inhabitants of London perished by it. A similar pestilence raged at Paris, continuing for three or four years, and carrying off weekly 2000 persons during some portion of that time. This pestilence was supposed by the physicians to have been imported into London, notwithstanding the inclement seasons, and the famine and disease amongst the cattle, dumb animals, and even among dogs. The year following, 1604, the puncticular fever extended and raged with great violence all over Spain, attacking old and young; none escaping. A.D. 1605, various parts of Spain were afflicted by epidemic pestilence, especially Arbucias, where it was very fatal.

A.D. 1606. Epidemic pestilence prevailed all over Europe this year, and continued for some years after; it extended to America, where it attacked the company of emigrants taken out by George Popham, who were settled at a place in America called Sagadahoe, a patent having been granted

by King James to some London merchants to form a settlement there. Hutchison, Purchas, and Gorges, in their histories of New England and Massachusetts, describe this unfortunate adventure. Various provinces in Spain suffered from bubonic pestilence, which was remarkable as having been confined principally to children; great mortality from it occurred at Barcelona.

It was about this time that a mortal pestilence broke out in the fleet of Sir Thomas Gates and Sir George Somers, who were on their way to Virginia in America. It was a spotted fever, with yellowness of the skin, attended by bilious vomiting, hemorrhages, &c.,—symptoms which characterize yellow fever in the present day. It raged with an intensity equal to the true plague: it was preceded by bad weather and gales of wind lasting four days, which, with the crowded state of the ships, was sufficient to account for all their sufferings. The vessel in which Sir George Somers embarked was wrecked on the island of Bermuda, where Sir George died of the pestilence. The weather during this period was very inclement in England: heavy rains and inundations of the Severn deluged the country round about Bristol: epidemic pestilence soon after followed in Somersetshire and Norfolk. A comet was seen this year.

A. D. 1609, in the month of July, pestilence broke out in the cities of Citaro, Potraso, Castelnuovo, Padua, and other places of Venice and Albania,—in fact, throughout the entire jurisdiction of Ragusa. In August, the pestilence extended to Seville.

A. D. 1610, plague showed itself in the suburbs of the city of Granada, to which place it soon extended, causing great mortality. The year following, it prevailed in various parts of Spain, and Constantinople suffered awfully from pestilence about the same time; it carried off 200,000 of the inhabitants. "Such clouds, or swarms, of grasshoppers," says Short, "so plagued their city and country about, that they darkened the sun, and left not any green herb or leaf in all the country; they entered the bedchambers; they

were nearly as large as dormice, and had red wings." The year following, 1611, Goelenius writes, in his account of the plague which raged at Hesse and other parts of Germany, followed by a great pestilence among pigs and cattle in 1612, that a sudden and amazing quantity of spiders appeared; swarms of locusts laid waste the vegetable kingdom in Provence, tempests destroyed great numbers of shipping at sea, many dead bodies were drifted on the English shores as also on the shores of Holland, and a province, under the dominion of France, was nearly destroyed by inundation. The summer in England was hot and dry, and malignant fevers carried off great numbers.

A. D. 1613, epidemic pestilence occurred in various parts of France; and in Montpelier there was a malignant fever, with livid spots and carbuncles. Riverius states, that one-third of those who were attacked with it died. At Lausanne, where pestilence raged with great violence, there was such an abundance of flies as was never remembered to have occurred previously,—"tanta ubique fuit muscarum copia, ut post hominum memoriam vix similis visa fuerit." (Hildanus.) Pestilence also raged at Constantinople, where the physicians, supposing that the cats spread the contagion, advised the Emperor, Achmet I., to transport them to the desert island of Scutari. Spain, this year, suffered from malignant sore-throat, which raged with such severity, that it was considered to have been more fatal than in the year of the *garratillos* (quinsy). The year following, the winter was very severe, the summer cold and wet, and the autumn variable. The most deadly small-pox laid waste Crete, Alexandria, Calabria, Turkey, Italy, Dalmatia, Venice, Germany, France, Poland, Flanders, Persia, and Asia; it prevailed also, with great severity, in England. In some of these countries, measles was also prevalent. The mortality from the natural small-pox, at that period, equalled in fatality the plague in its worst form. About this period, water was first brought by means of the New River to London by Sir Hugh Middleton.

## CHAPTER VI.

### FROM A. D. 1616 TO 1704.

A. D. 1616, Germany was greatly troubled with epidemic agues. Two years after, violent tempests, inundations, volcanic eruptions, meteors, &c. distinguished this pestilential period or season. A malignant angina prevailed at Naples: the plague infested Bergen, Norway, Denmark, Egypt, the Levant, and many other places; and a terrible yellow pestilence, in both North and South America, swept away thousands of the Aborigines (Indians). Hutchison says, that the Massachusetts tribe in North America, consisting of 30,000 persons, was reduced to 300! Gorges writes, that the disease occurred in the summer and autumn for several years, commencing A. D. 1618, and ending in 1623. This distemper the Indians described as a spotted putrid fever, with ulcers, and yellowness of the skin and eyes, and bleeding from the mouth and ears. This pestilence must have been of domestic origin, as no known intercourse had been held with any part of this new continent; it evidently was endemic—a bilious pestilence.

A. D. 1617, a terrible inundation occurred in Catalonia in Spain, from continued heavy rains, during which more than 50,000 persons lost their lives: the year following, a comet appeared. From this time until 1623, Malta, Naples, Hungary, France, and England suffered from epidemic diseases, such as small-pox, plague, &c. Seville was visited by gangrenous sore-throat about this time; and in 1619, many places in the Levant suffered from epidemic pestilence. In 1620, Antonio de Fonseca, a Portuguese physician of the city of Lisbon, wrote a work entitled 'De Epidemiâ

febrili, grassante in exercitû Regis Catholici in inferiori Palatinato.' During this year a heavy snow-storm was experienced, which continued for thirteen nights and days; upwards of 20,000 sheep in one district, Eskdale Moor, were destroyed by it and famine conjoined.

A. D. 1622, London was visited by epidemic pestilence, which continued for four years. In the first year there died 8000; in the second, 11,000; in the third, 12,000; and in the fourth, 35,417. Plague also broke out about this period in Amsterdam, and persisted, as it is stated, eight years. Pestilence was prevalent in many parts of Spain. In July, the Council of One Hundred, at Barcelona, received advice that pestilence had broken out at Argel; orders were given, in consequence, for the exclusion of all slaves and goods coming thence.

A. D. 1625, plague broke out in London, and raged with varied intensity all over England; 30,000 persons were carried off by it in London alone. Epidemic disease also prevailed in Italy, Denmark, and Egypt. Inundations occurred in Spain. In the month of January, the river Tormes departed from its bed, destroying cattle and houses in Salamanca. Seville suffered similarly from the overflowing of the Guadalquivir; and in the year following, 1626, pestilence carried off 60,000 persons at Lyons. France continued to suffer from pestilence the two following years.

A. D. 1629, epidemic pestilence broke out in Narbonne; it also prevailed at Amsterdam, and at Cambridge in England, where it raged mortally: yellow pestilence was rife at the same time in America, and plague raged at Marseilles.

A. D. 1630, the principality of Catalonia suffered from plague in different parts: Drs. Mas, Mox, and Rosell described the disease in their works: its symptoms were those of the malady which we now term Andalusian fever,—a yellow bilious fever. The city of Guadix suffered from pestilence of the puncticular type at the same time: it continued there for two years and upwards. Gangrenous ergotism prevailed in many of the provinces of France, as

reported by Dr. Thullier, physician to the Duc de Sully, the prime minister of Henry IV. The first symptom of this extraordinary malady was a numbness of the legs, then pain with slight swelling, devoid of inflammation, to which succeeded rapidly coldness, lividness, mortification, and dropping off of the limbs. In many instances, the nose, fingers, hands, arms, feet, legs, thighs, sphacelated spontaneously, and dropped off. The following extraordinary account of a similar disease occurring in a family at Watlesham, in Suffolk, was transmitted to the Royal Society of London, and published in its 'Transactions' for the year 1762. The report was drawn up by Charlton Wollaston, M. D., F. R. S.: it was as follows:

John Downing, a labourer at Watlesham, in the month of January, 1762, had a wife and six children; the eldest, a girl about fifteen years of age, the youngest aged four months; at that time all were very well, as the man himself and neighbours assured Dr. Wollaston. On Sunday, the 10th of January, the eldest girl complained in the morning of a pain in her left leg, particularly in the calf, increasing severely towards evening. The same evening another girl (her sister), ten years old, complained also of violent pain in the leg. On the Monday the mother and another child, and on the Tuesday all the rest of the family, except the father, were affected in the same manner. Their pains were excessive, insomuch that the whole neighbourhood was alarmed by the loudness of their shrieks. The left leg only in most of the cases was affected; but in some, both legs were diseased. The infant was removed from its mother's breast as soon as it fell ill, and survived only a few weeks. The nurse told Dr. Wollaston that it, too, seemed to be in violent pain, and that its legs became black before death.

Dr. Wollaston's inquiries were very minute; he was told that in about four, five, or six days, the diseased leg became somewhat less painful, and gradually turned black, appearing at first covered with spots as if it had been bruised; then commenced the affection of the other leg,

with the same excruciating pains, and in a few days thereafter that also began to mortify: in a very little time both legs were perfectly sphacelated: the mortified parts separated from the sound spontaneously, the attending surgeon having in most of the cases no other trouble than merely to saw through the bone, with little or no pain to the patient: the separation took place generally about two inches below the knee; in some, rather lower, and in one instance the feet separated at the ankles without any surgical aid; in others the separation was less perfect. The eldest girl had one leg taken off, and the other was entirely sphacelated, but the surgeon delayed removing it, owing to a large abscess which had formed under the hamstrings, attended with a swelling of the thigh. The mother's right foot came off at the ankle-joint, while the other leg, wasted to the bone, was black and extremely fœtid, what little remained of flesh being quite putrid and almost dried. In one child alone was one of the legs saved, but with the loss, however, of two toes even from that. Three of the children lost both legs, and another child both its feet. The father was attacked about two weeks after the rest of the family, but in a slighter degree, the pain being confined to two fingers of his right hand, which turned blackish and withered for some time, but then got better, and he recovered the use of them.

It is remarkable that during the time of this dreadful calamity the whole family are said to have appeared well in some respects; that is to say, they ate heartily, and even slept well when the pain began to abate. When Dr. Wollaston saw them, they all seemed free from febrile symptoms, except the girl already mentioned, who had an abscess in the ham. The mother looked emaciated, and had but very little use of her hands. The rest of the family seemed well; one poor boy in particular looked as healthy and florid as possible, and was sitting on his bed, quite jolly, drumming with his stumps!

On inquiry, it was evident that this disease proceeded from eating bread made from spoiled wheat. Another labouring

man, who had eaten of the same bread, was affected with a numbness in both hands for about four weeks from the 9th of January: they were continually cold, and the skin peeled off his fingers' ends: one thumb, he says, remains without any sensation. A nurse who had lived with them from the beginning of their illness was not affected.

A.D. 1631, there was an eruption of Mount Vesuvius. An erysipelatous epidemic was prevalent in various parts of Europe. In the month of April a decree was published in Spain prohibiting all intercourse with France, where pestilence was rife. The year following, 1632, a similar decree was published prohibiting intercourse with Narbonne. Plague broke out at Dresden, and continued until the year 1637. A.D. 1633, Newcastle-upon-Tyne was inundated; many lives and much property were destroyed. The year following, 1634, plague raged with great violence at Ratisbon; and in 1635, epidemic pestilence carried off 20,000 of the inhabitants of Leyden; it also was very fatal in many parts of Germany.

A.D. 1636, frequent and excessive rains induced epidemic fevers during the summer and autumn in Barcelona and in other parts of Spain; plague raged in London, destroying 10,000 persons. Nemiguen suffered greatly from disease. Epidemic pestilence was also rife in Egypt; and, according to Diemmerbroeck's account, also in Holland and Denmark. Constantinople with Natolia suffered greatly from disease of a similar kind.—A.D. 1638, malignant fevers with small-pox prevailed in the United States, and also along the coasts of South America: and a new disease, which continued for ten years, attacked the inhabitants, principally on the coasts of St. Andres, Malaga, Puerto de Santa Maria, and Xeres de la Frontera. Many provinces in the interior also suffered from it, as Burgos, Nieto, Viana, and other cities of Navarette. A severe earthquake was felt at Naples and in Sicily; it swallowed up several towns and more than 30,000 persons: it occurred in the month of March. The year following there was a severe frost in England, which continued for

nine weeks, commencing on the 24th of December. London was visited by epidemic pestilence of a severe type; a similar disease was also rife in other parts of Europe.—A.D. 1640, many portions of South America inhabited by Spaniards suffered from yellow pestilence.

A.D. 1642, in the month of January, heavy rains fell continuously for sixteen days at Seville, during which time the Guadalquivir overflowed its banks, destroying much property in Castile, as also many of the inhabitants. The settlers at Newhaven, in the United States of America, and those on the banks of the Delaware river, suffered from pestilence, during this year. In the subsequent year, the city of Boston suffered from epidemic disease, as did also many other parts of the States. A malignant fever broke out in the army of the Earl of Essex, whilst besieging Reading, in England; the king's army also suffered. Great numbers in both armies having died, it ultimately extended to Oxford and to all the villages within ten miles. It first appeared like a putrid synochus; after the middle of summer it raged with increased violence and in a greatly aggravated form; spots began to appear and pustules, attended with great prostration of strength; many had buboes as in the true plague. During the dog-days the disease was considered and treated as a mild form of plague.

A.D. 1644, epidemic malignant disease broke out at Madrid, causing great mortality. Denmark and England also suffered from malignant fevers, which were followed by dysentery. The preceding summer had been excessively hot, and there were also heavy and frequent showers, with dews at night.

A.D. 1646, inundations took place in Holland, in Zealand, and in Friesland. Earthquakes were felt in many parts of the world; in Chili, several mountains of the Andes sunk into the earth, one after another. A comet was seen about this period. The ravages of locusts were great during this and the two subsequent years. Pestilence caused great destruction in Andalusia: plague raged in London, extending to other parts of the kingdom, especially to Newark, Stafford,

and Totnes. About the same time it likewise occasioned great mortality in Ireland. Epidemic catarrh prevailed in America, affecting equally the Dutch, English, and Swiss colonists. Pestilential yellow fever was rife throughout the West Indies, especially in Barbados and St. Kitts; it has been computed that in the two islands 12,000 perished. Various parts of Spain suffered from epidemic pestilence during this and the following years: the city of Valencia suffered great mortality from an epidemic; it was of so general a character, that it seized on old and young.

A.D. 1649, epidemic small-pox prevailed in the city of Boston, United States; plague re-visited London and Shropshire, and was destructive in Ireland. Spain suffered dreadfully this year, especially in the southern provinces, where, it is said, disease carried off 200,000 persons. Marseilles also suffered greatly. This year, says Fray Francisco de Cabrera, was the most tragic ever known in Seville, at least since 1246; the violence of the pestilence ceased about May, when the city was one entire hospital. There was great mortality also at Marbella, a port of the Mediterranean. In France, a very hot summer, with much thunder and lightning, was experienced, which did great mischief in Guienne, Bourdeaux, and other provinces, firing hayricks, granaries, &c. Several of the Members of the Parliament of Aix were found dead in their beds after a tempestuous night of thunder and lightning; and the day following, the roof of the house in which Parliament was assembled fell in, and killed several members.

A.D. 1650, the winter was open, and the spring cold and wet. Severe influenza prevailed all over Europe, and was succeeded by a general pestilence during the hot summer and autumn. It prevailed in the form of ague in Denmark, and of inflammatory fever in France. This epidemic, in rather a formidable character, called by some writers 'ignis sacer' and 'fièvre St. Antoine,' and by the French 'ergot,' raged during this period with great mortality in Sologne. The disease was not ascribed so much to the scarcity of food, as

to a diseased state of the rye. It commenced with lassitude and debility, followed by torpor, swelling, and burning heat, with excruciating pains in the lower limbs, which became shrivelled and dark, and at length gangrenous. There was reason, however, to believe that this malady was the result of insufficient food, amounting almost to starvation, and not of diseased grain. The lower classes, as is generally the case, suffered most. Pestilence also caused great ravages in Russia and Poland. Clouds of locusts were seen to enter the former country in three different places: they afterwards spread over Poland to Lithuania in such astonishing multitudes, that the air was darkened and the earth blackened with their numbers. In very many places they were found heaped up upon each other to the depth of *four feet!* in others they covered the surface of the ground like a black cloth. The trees bent with their weight; and the damage sustained by the country was beyond computation.

The city of Carmona was visited by epidemic pestilence, as was also the neighbouring country. The disease which pervaded Andalusia soon spread with great mortality through the populations of Catalonia, Aragon, and Valencia. In the month of February the Council of One Hundred (Ciento) of Barcelona were occupied with the pestilence which was ravaging Tortosa. In May the same Council declared Gerona to be in a pestilential condition. The year following, 1651, the city of Huesca, as also Alcubierre and a greater part of the population of Aragon, suffered from pestilence of rather a formidable character. Barcelona soon became affected; the disease raged there with extreme violence. Dr. Salvador wrote a work describing this pestilence: it was entitled 'Breve Tratado de la Peste y fiebre pestilente, en el qual se trata de su esencia, causas, dignocion, preservacion y purificacion.'—A. D. 1652, a comet was seen.

A. D. 1653. In Girona, at present called Gerona y Osterlique, pestilence broke out, and raged with violence. The year following, 1654, epidemic disease again made its appear-

ance in England and also in Denmark. In the month of April it broke out in Chester in England. Pestilential disease at this period was also rife in Turkey, Russia, Presburg, Hungary, Italy, Egypt, Malta, Sardinia, Leyden, Riga, and Amsterdam: 200,000, it is stated, died from it in Moscow alone, 9000 in Riga, 13,200 at Amsterdam, and 13,000 at Leyden.

Two years after (1656), 240,000 persons were destroyed by mortal pestilence in Naples; a great number—9000—in Benevento, 10,000 at Genoa, the like number at Rome, and in the Neapolitan territories generally it is supposed 400,000 perished. Cardinal Gastaldi, speaking of the pestilence at Rome, states that it was one of the most horrible diseases Rome had ever suffered from. The same author eulogizes the precautionary measures adopted by the Spaniards and the Portuguese. Franco, a physician of Carmona, in his work entitled 'Elysius jucundarum Quæstionum Campus medicis imprimis utilis,' lauds as great alexipharmics the properties of the unicorn and of the bezoar concretion.

In the spring of 1658, epidemic catarrh prevailed all over Europe, and in the following autumn degenerated into malignant fever: it caused great mortality in England and France, where the seasons were very intemperate. Epidemic disease was also rife in North America during this period. The fever which prevailed in England was of a peculiar kind —a pernicious intermittent: it was universal, and raged with as great destructiveness as the plague. A similar disease, we are informed by Morton, continued for some years previous to the plague of 1665. Oliver Cromwell died of it; and Morton states that his own father also perished by it, and that he himself and his whole family were infected. "Matrem pientissimam, fratres, sorores, servos, ancillas, nutrices conductitias, quotquot erant intra eosdem nobiscum parietes, ac fere omnes ejusdem ac vicinorum pagorum incolas, hoc veneno infectos et decumbentes vidi." He proceeds to say that the cold weather afterwards checked the disease in some measure,—yet the seeds of it seem to have been by no means

destroyed; for it still continued to show itself under other forms: "durante enim brumâ, intermittentes quartanas, tertianas, quotidianas, ab ejusdem veneni mitiore gradu oriundas, fere æque epidemias videre erat ac in autumno συνεχέας seu remittentes; neque mehercule sæviente gelu penitus defecerunt istæ febres continentes. Atque equidem hancce febrem hoc pacto sub typo συνεχέος præsertim simplicis et legitimæ, quotidianæ scilicet, vel tertianæ, maxime vulgarem fuisse, et tempore autumnalis plus minus epidemiam, usque ad annum 1664 observavi." He informs us likewise, that in the two years immediately succeeding the great plague, dysenteries were very frequent; so that in the autumn of 1667, "civitas fere universa hoc morbo correpta videbatur, atque singulis septimanis 345 plus minus fluxu et torminibus confecti fatis cedebant."

It was during this year (1658) that remarkable phenomena were observed in various parts of Europe. The most tempestuous and inclement weather was experienced; and on the day on which Oliver Cromwell died, there arose a dreadful storm in England, which was felt all over Europe, and from its severity seemed to threaten all nature.

Two years after, A. D. 1660, there was an eruption of Vesuvius.

A. D. 1661, a comet made its appearance, and an earthquake was again felt with great severity at Chili: China suffered in a similar manner the same year, 300,000 persons having been buried in Pekin alone.

The year following, A. D. 1662, great drought was experienced in England; the springs were dried up, the rivers were very low, and an epizootic prevailed with great mortality among cattle: it was of rather a remarkable character, being a disease of the liver; a small worm (entozoa), especially in sheep, it is said, seemed to prey on the liver, lungs, and bowels: Venice was also visited by pestilence, of which it is said 60,000 persons died. Puerperal fever was very destructive this year at Leipsic and at Copenhagen.

A. D. 1663, severe pestilence prevailed in England. The

illustrious Sydenham graphically describes the various epidemic maladies which prevailed all over England from the year 1661 unto 1680. Inflammatory fevers and quinsies, he says, were more frequent in London than they were ever before known to be. During the summer of 1664, in the month of May, a comet was seen and a malignant fever prevailed, which could not in many cases be distinguished from the true plague; and in the month of June it became greatly aggravated. From the 2nd of November the true plague raged with violence, and continued with great mortality for eighteen months, unto May, 1666. Among the signs foreshowing the advent of the plague, it is said that birds, wild fowl, and wild beasts left their accustomed haunts, and but few swallows were seen. In the summer of 1664, there were such multitudes of flies, that the insides of houses swarmed with them; ants were generated in great numbers, and might have been taken up from the highways in handsful; the ditches were filled with frogs and various kinds of insects.

The plague was ushered in with seven months' dry weather and westerly winds: it commenced on the highest parts of London, in the parish of St. Giles in the Fields, whence it extended rapidly to St. Martin's, Westminster, Highgate, Hampstead, and Acton; all these parishes and villages were soon infected.

"The disease," says Mr. Boghurst, a medical practitioner, who resided in the metropolis during the whole period of the prevalence of the disease, "spread not altogether by contagion at first, nor began only at one place, and spread farther and farther as an eating and spreading sore doth all over the body, *but fell upon several places of the city and suburbs like rain even at the first*,—as St. Giles', St. Martin's, Chancery Lane, Southwark, Houndsditch, and some places within the city, as at Proctors' Houses." Boghurst further states that "this year, 1665, in which the plague hath raged so much, no alteration nor change appeared in any element, vegetable or animal, besides the body of man, *except only*

*the season of the year and the winds;* the spring being continually dry for six or seven months together, there being no rain at all, but a little sprinkling shower or two about the latter end of April, which caused a pitiful crop of hay in the spring: in the autumn there was a pretty good crop, but all other things were healthy and sound, and all sorts of fruits, such as apples, pears, cherries, plums, grapes, melons, cabbages, &c.; all roots, as parsnips, carrots, turnips; all flowers, and medicinal simples, were as plentiful, large, fair, and wholesome, and all grain as plentiful and as good as ever." 68,596 persons are reported to have been carried off this year by the plague in London alone. A comet was seen in 1665, and an earthquake shook Oxford. Immediately after the great fire, on the 2nd September, 1666, which destroyed 13,200 houses, fatal dysentery was very prevalent. During this period, a plague infested the island of Malta; yellow pestilence, or fever, prevailed in the island of St. Domingo, as also in many other of the West Indian Islands; Holland and Prussia suffered from severe epidemic disease: and the year following, 1667, a miliary pestilence raged in Bavaria; Spain suffered from epidemic pestilence, from which no province escaped: it caused great mortality, and was rapidly fatal. Don Pedro Vasquez, a physician of Toledo, describes the symptoms as being those of quinsy, attended with malignant fever, in his work entitled 'Morbi Essentia qui non solum per hanc insignem urbem Tolitanam, sed per totam Hispaniam sparsim grassatur, quem vulgus garratillo appellat, Apologetica Disceptatio; et ea quæ in curatione hujus morbi sunt animadvertenda.'

The same year, A. D. 1667, Salamanca and Lisbon suffered from pestilence. Yellow fever appeared in the United States of America in A.D. 1668, and was especially destructive in the cities of New York and Philadelphia; in the subsequent year, the inhabitants of Norway were visited by pestilence in the shape of malignant measles, which with small-pox was also rife in England. About this time, a terrible earthquake occurred at Naples, which destroyed

great numbers of lives and houses in Benevento. The Archbishop was dug out of the ruins, and became afterwards Pope Benedict XIII.

A.D. 1670, gangrenous ergotism broke out in Aquitaine, in Sologne, and in the Galinois district; it continued until 1674, by which time it had extended to Montagris and the neighbourhood.

A.D. 1672, in the month of December, there fell in the West of England a shower of rain that froze into ice as soon as it touched the boughs of trees or anything above ground, and by the increase of size of the icicles, it broke all down with its weight. The ice on the sprig of an ash weighing three-quarters of a pound amounted to sixteen pounds. The rain that fell on the snow immediately became ice without sinking into the snow, so intensely cold was the weather. About this time, a strange phenomenon occurred; while the English were waiting for the flow of the tide, in order to land on the coast of Scheveling, they were disappointed; as the next tide flowed but two hours, when an ebb for many hours succeeded, which carried the English fleet again to sea before the return of the flow: the Hollanders were thus preserved from an invasion, as it were, by a miracle. In Spain, great sterility of the land and epidemic disease prevailed. In the month of May, the Council of One Hundred were informed that pestilence had broken out on the French frontiers. Miliary pestilence prevailed in Hungary; and in the early part of the year following, 1673, an epidemic of a violent character broke out in Spain, which continued until 1684; it was described by Valcarcel as being of a tertiary type. The disease was of a mild form in the months of May and June, but increased in malignancy in August, September, and October to such a degree that it destroyed nearly half the inhabitants of Barcelona.

A. D. 1675 and 1676, virulent small-pox and measles again broke out in England. In the former year (1675), 11,300 persons were carried off by plague in the island of Malta: a miliary epidemic was very fatal in Hamburgh, and, accord-

ing to Escobar, the inhabitants of the city of Carthagena suffered from epidemic tertian fevers.

A.D. 1677, a comet was observed. Pestilence again broke out in Murcia and Carthagena; thousands died of small-pox in Charleston, Massachusetts, United States, and a plague desolated many parts of Europe. From this year until 1679, epidemic pestilence overspread Spain; and, according to the statements of several historians, the capitals of Granada, Cordova, and Seville suffered greatly.

A.D. 1678. A comet was observed this year also. An inundation occurred in Gascony, when the water spouted in jets from the sides of an adjacent mountain in overwhelming quantities. Plagues ravaged Algeria and Morocco. — The year following, mortal pestilence prevailed in Vienna, and in Malaga and other parts of Andalusia.

A.D. 1679, pestilence and famine were rife in Germany from June until the month of December the following year, 1680: two comets were observed. Dresden suffered from plague, and cholera prevailed in England.

A.D. 1681, there was a great fire in Southwark, on the Surrey side of the Thames, and 600 houses were destroyed. Bronchial disease was prevalent in England: a mortal angina, which caused death in twenty-four hours, raged in Italy, Poland, Switzerland, and Germany; and at the same time a petechial fever prevailed in Dublin and in other parts of Ireland: pestilence was rife in the island of Sardinia and in different parts of Castile; it also broke out in the city of Esmirna, and extended to Carthagena, Murcia, and Oran, and soon after to Malaga, Antequera, Granada, Moron, Ronda, Lucena, Andujar, and other districts; and thence to Xeres, Santa Maria, and Cadiz.

A.D. 1682, there was an eruption of Vesuvius, and the city of Catania was destroyed by an earthquake; there was also an eruption of Etna, which destroyed 60,000 of the inhabitants. A comet was seen this year.

A.D. 1683, there was a comet seen, and earthquakes were felt in many parts of England. The winter was very incle-

ment; and the frost was so severe at Christmas, that the river Thames was frozen over below Gravesend for thirteen weeks. Epidemic pestilence broke out in Argel and other parts of Berberia. The winters of this year and the following were the coldest ever experienced by the oldest inhabitants in Europe; the summers were rainy, and the autumns cold: epidemic disease spread over both continents—Europe and America. Pestilence, say Drs. Sastre and Puiz of Spain, prevailed over nearly the entire world; the city of Vich was greatly afflicted. Epidemic pestilence also prevailed with the greatest violence on the coasts of Spain; the Hungarian fever did much mischief in Leyden. The three following years the summers were hot and dry; grasshoppers overspread Languedoc in France, the subsequent autumn being cold and wet. Malignant fevers were very destructive in Europe and America.

A.D. 1686, Friesland was inundated, and thousands of men and cattle were drowned. The following year, an earthquake shook the island of Jamaica and Lima. There occurred also an inundation in Yorkshire; a rock opened visibly, and water was thrown into the air to the height of an ordinary church steeple: a comet was observed. Yellow pestilence caused great mortality in the West Indies, especially in the island of Martinique, where it was called 'Maladie de Siam,' from the supposition that it had been imported from that country.

A.D. 1688. Catarrhs, pleurisies, and dysentery were epidemic, this year, both in Europe and America; and during the following years, 1689-90 and 1691, pestilence prevailed with great severity in Germany, Italy, various parts of Spain, and in the United States of America: it was preceded in America by hot and moist weather.

A.D. 1690, about the beginning of June, all the legumina and springing corn were spotted with mildew; grapes and other fruits were destroyed, or rendered unfit for use, and the leaves of herbs, shrubs, &c., were eaten to the stems by various insects. Much rain fell during the first seven

months of the year and after the autumnal equinox in Lombardy. "All the animals suffered," observes Ramazzini; "even bees and silkworms perished; and the cicadæ did not sing this year; swine died of suffocation,—but the greatest destruction was among cattle." He applies the title 'pestilential' to the disease affecting men in the season which proved so fatal to cattle. Miliary or sweating pestilence committed great ravages in Stuttgart, Dusseldorf, Erfurt, and Jena. Bilious remittent or yellow fever was prevalent in the United States of America; it raged with great violence in Charleston. Various parts of Spain, about this period, suffered from epidemic pestilence, especially Perpignan and Bellagardi; disease was also rife in Italy. A severe earthquake was felt this year all over Ireland.

A.D. 1692, the summer was hot and dry, and on the 7th of June an awful earthquake swallowed up Port Royal, Jamaica; Lima also suffered from a similar shock: 2000 citizens were drowned in the former place:

> "Earthquakes, Nature's agonizing pangs,
> Oft shake th' astonish'd isles."

Mosquitoes and flies were generated in great numbers, and yellow malignant or bilious remittent fever carried off 3000 of the inhabitants of Port Royal, Jamaica. The same year, yellow fever was also very fatal at Barbados, and continued to be so for several years.

The year following, 1693, an earthquake was felt in England, France, and Germany; 60,000 persons, out of 254,000 inhabitants, perished about the same period from a shock in Sicily.

A.D. 1694, an eruption of Vesuvius took place, and Messina was destroyed by an earthquake. Epidemic catarrh raged among men and horses in various parts of Europe. The seamen and troops under Sir Francis Wheeler, sent to conquer the island of Martinique in the West Indies, suffered dreadfully from yellow pestilence, which, during the same year, was rife in the United States of America; the inhabi-

tants of Boston, New York, and Philadelphia, were carried off in great numbers: a Dr. Gamble strangely describes it as being a new disease; it was called 'the new distemper, or Kendall's fever,' at Barbados, where it prevailed, causing great mortality. Miliary fever broke out in Berlin, and continued for some time: it was not very fatal.

A. D. 1695, pestilence broke out amongst the American Indians. The inhabitants of the island of Bermuda suffered from yellow fever; and the following years, a similar disease prevailed in the United States of America, especially in Connecticut, New Hampshire, &c.

A. D. 1698, a comet was seen. Spain suffered again from epidemic disease; it was very fatal in Cerdena: Don Manuel de Alsivia wrote a work describing the malady. The disease was supposed to have been taken out to South America; various parts of the coast having suffered severely from this pestilence, Buenos Ayres especially, it spread to a considerable distance, and Lima was nearly depopulated by it; for it nearly devastated the country, sparing neither Spaniard, white, creole, mustee, mulatto, nor negro. North America also suffered from pestilence: at this period, a dreadful disease affected the Anglo-Americans; the inhabitants of Charleston and Philadelphia suffered in the following year, 1699. There was an awful earthquake in China, and nearly 400,000 persons were destroyed. A comet was seen this year. The disease which affected the Anglo-Americans was considered to be similar to, and as severe as the epidemic which had devastated Barbados a few years previously. Fatal catarrh prevailed in England, and plague in various places in the Levant: France also suffered from pestilential catarrh, and an epizootic among the cattle, especially among horses. Capmany describes the disease as being a bilious plague, which at this time prevailed in Liorna, Geneva, Cerdena, Narbonne, and Nismes.

A. D. 1700. Upon the death and in accordance with the will of Charles II., and in obedience to the orders of Maria Theresa of Austria, the celebrated and spirited Don Felipe

VI. was invited to Spain. The civil wars, which arose in consequence, produced great devastation and ruin in the land, and were succeeded by an epidemic of a severe type: it is supposed to have originated from the corrupt and irregular habits of the soldiery, who were composed of different nations; its form was that of a malignant exanthematous fever, attended with delirium. Escobar speaks of the disease as being contagious. Pestilential angina, says Bruno Fernandes, in his recent observations, was so fatal to children, that at the commencement of this century but few escaped its ravages, and the disease was in every way the most fatal that had been experienced for a long time: it was called miliary or sweating pestilence, at Breslau; and was very destructive to the inhabitants of the island of Milo, in the Levant. In the North of Europe it was followed by small-pox. During the subsequent seven years of this century, epidemic pestilence prevailed in various parts of the world,—England, Scotland, Friesland, the United States of America, &c.

A. D. 1701, there happened an eruption of Vesuvius: the year following, 1702, the family seat of Borge, near Frederickstadt, in Norway, sunk, with all its towers and battlements, into an abyss one hundred fathoms deep, and its site was instantly filled with water, which formed a lake three hundred ells long and one hundred and thirty broad. Many persons, together with upwards of 200 head of cattle, perished. A comet was seen about this period; and in the next year, 1703, small-pox and scarlatina raged at Boston, United States; in other of the States they were attended with fever of a most malignant type. During this period the drought was extreme; the autumn was sultry, with cold damp nights, north winds, and frequent showers; bilious plague broke out in the city of New York, and was more fatal than at any other previous period; it was termed 'the great sickness.' Ergotism prevailed throughout the whole country of Freiburg. A dreadful thunder-storm was experienced in England on the 26th and 27th of November of this year,

which frightened the whole kingdom; the houses in London were violently shaken, and many fell; the water rose to a great height at Westminster Hall, and London Bridge was choked up with the wrecks of boats, &c.; fourteen ships of war were lost during the storm, with great numbers of seamen. The damage done by it in London alone was computed at one million pounds sterling: at the same time Rome was shaken by an earthquake, and the city of Aquila, in the kingdom of Naples, was destroyed; many thousand persons were buried in its ruins. The year following, 1704, there was an eruption of Vesuvius.

## CHAPTER VII.

### FROM A. D. 1705 TO 1795.

A. D. 1705, in the city of Ceuta, an epidemic malignant fever broke out, and raged with dreadful violence, causing great mortality. The appearances on dissection, as reported by Don Antonio de la Locha, proto-medicus of the army, were as follow: "The blood was observed to be coagulated in the ventricles of the heart, especially in that of the right side, and also in the vena cava (in the immediate neighbourhood of the heart); the pulmonary artery was similarly engorged. In the aorta the blood was also very thick, but in moderate quantity: the pulmonary veins were nearly empty. These phenomena were not observed in all cases, since in the majority the blood was only thickened and not coagulated; and the cause of this difference," observes the reporter, "was according to the greater or less degree of power of the malignant ferment." In the month of April, pestilential disease broke out at Tunis: in the May following, Malaga was attacked by it; and in August, the island of Cerdena suffered greatly from its violence.

A. D. 1706, a comet was visible, and thunder-storms were experienced in many parts of England. The next year an eruption of Vesuvius occurred, and an island, five miles round, rose from the bottom of the sea in the Archipelago:

——— "His hand the lightning forms,
He heaves old Ocean, and he wings the storms."

A. D. 1708, a severe storm, with thunder and lightning, was experienced at Ipswich and Harrogate. A universal catarrh overspread all Europe and America, and was followed by

pestilential fevers. Lanciscus relates that a similar epidemic appeared and raged with much severity in Italy, principally at Rome: he describes the malady as beginning with a running at the nose, or coryza, attended with pains in the limbs, extending over the whole body, but felt more especially in the chest. In the spring, peripneumoniæ prevailed; chills and flushes suddenly seized persons, and were accompanied by severe cough, spitting of blood, and turbid, scanty urine; the respiration was laborious, and a general yellowness of the body was observed. In the years following, A.D. 1709, 1710, and 1711, various parts of the coast of South America suffered from putrid or yellow pestilence, especially in the Brazilian territory; vast numbers were carried off of all complexions, from the mulatto to the black. Seville and various other parts of Spain were visited by dire pestilence at this period; it caused great consternation amongst the inhabitants throughout Andalusia. The celebrated Spanish physician, Dr. Don Diego Villalon, was famous for its treatment. Plague or pestilence raged at Dantzic; a prodigious number of insects, especially of spiders, had been noted in the city of Seville the year previously. This pestilence continued for some time; in fact, the five following years may be said to have been remarkable for general and aggravated epidemic disease all over Europe. Horned cattle and horses were observed to suffer greatly from an epizootic. In Holland alone it is reported that 300,000 head of cattle were destroyed by it.

A.D. 1709, Sologne was again visited by gangrenous ergotism, a fourth part of the rye crop having been infected with the ergot or spur. About this period, memorable for hard frosts, this disease appeared in the cantons of Lucerne, Zurich, and Berne; it also prevailed in those places in the years 1715 and 1716, and also epidemically four or five times within the space of ten years at Orleans.

A.D. 1710. Copenhagen and many parts of Sweden suffered from sweating sickness this year: its victims at Stockholm were 30,000; and it is reported that 25,000 died of it in

Copenhagen in six months. Pestilence raged in Lithuania; and the troops under General Nicholson, destined to co-operate with the fleet of England in the reduction of Canada in North America, encamped at a place called Wood Creek, in the province of New York, were affected with a sore epidemic distemper, which carried off great numbers.

A. D. 1711, a murrain broke out among cattle in Italy and Germany; the disease was supposed to be a sort of typhus fever, but was in fact, more properly speaking, a fatal dysentery. The following year, A. D. 1712, a miliary or sweating pestilence raged at Mümpelgart. There was an eruption of Vesuvius that year.

A. D. 1713, in consequence of small-pox being rife at Constantinople, inoculation was practised: the following year, a fatal epidemic raged among the horses and horned cattle in England, by which 70,000 head were destroyed: it was supposed to have been occasioned by the excessive heat and drought during the summer months: great numbers of insects were generated.

A. D. 1715, small-pox and measles were epidemic in many parts of Europe, and malignant yellow pestilence raged in the United States of America. Thomas Hacket, of Duck Creek, states that the disease was equal in intensity to that which raged in London in 1665. Miliary fever prevailed at Breslau and at Turin.

A. D. 1716, a dreadful storm, with heavy rains, thunder and lightning, did much damage throughout England. On the 6th of March, an aurora borealis was visible for three days. The noble city of Aguilar de Campo, situated on the sea-shore, having suffered about this time from cold and damp weather, epidemic variola broke out in the month of March, and was the prelude to a pestilential sore-throat, or quinsy, which lasted until December, 1719.

A. D. 1717, there was another eruption of Vesuvius, and Friesland was again inundated. Half the province of Groningen was ruined by it, and 2500 of its inhabitants perished: it occurred on the 24th and 25th of December. Various

parts of the country suffered: all the Lower Elbe was under water, and it is stated that fully 20,000 persons were drowned. From this period until the year 1721, according to Dr. Casal, southern winds prevailed, with dry, cold weather, which suddenly changed to a dry heat, lasting for weeks; after this, copious rains fell, accompanied by frequent changes in the direction of the winds. In the autumn, an epidemic jaundice became so general, that nearly a tenth part of the population of the Asturias suffered from it. Pestilence in the shape of the true plague carried off 80,000 persons in Aleppo. We are told by Didier that this year the fields were barren and the fruits bad, so that the poor, among whom the disease chiefly raged at Marseilles, were almost starved during its prevalence. Mr. Secretary Craggs applied to Dr. Mead to be advised as to the most effectual remedy for or preventive of the plague.

A. D. 1718. A comet made its appearance this year, and a severe shock of an earthquake was experienced in China. In the following year, an aurora borealis was observed, which was supposed to have been not more than thirty-eight miles high.

A. D. 1720, Marseilles was visited by a dreadful plague, which raged with great fury. In order to mitigate the disease, the king's ministers commissioned Don Josef Fornés, a native of Hostal-Rich, to proceed to the university of Montpelier, in order to consult with the physicians of that university as to the best means of prevention and cure. All social affection became extinct, the consequences being as dreadful as those of the disease itself. Husbands and wives, parents and children, and the dearest friends and connexions, hastened to escape from each other, and an exclusive selfishness took possession of every heart. The symptoms of this terrible scourge were variable: shiverings were often followed by a quick pulse, which soon gave way under pressure. The warmth of the skin was generally natural, whilst a burning heat was felt within, and an almost inextinguishable thirst. The tongue became white, the speech faltering, eyes glaring,

face red or congested, and sometimes livid; pains at the heart were frequent; nausea and bilious vomitings, with looseness of the bowels and hemorrhage, were always fatal symptoms. The most characteristic sign of the malady was buboes in the groin or arm-pit, but these were not always attendant, especially when the disease proved rapidly fatal, as was the case in many instances. Toulon, Aix, and Arles also suffered greatly from this pestilence: the deaths were estimated at one-third of the whole population! In a district of Provence where the population amounted to 247,899 persons, 87,659 perished. Miliary fever was exceedingly prevalent and fatal in the canton de Bray, in Lower Seine.

A. D. 1722, Port Royal, Jamaica, was destroyed by an inundation. Deadly yellow pestilence succeeded, the year following. Hoffman, Schenckius, and other authors give an account of an epizootic which prevailed this year in several parts of Spain. About the same time, an epidemic pestilence, much more malignant than that which had occurred in 1706, broke out in Granada, accompanied with exanthematous eruptions. The city of Placentia was also visited by pestilential fever, the best remedy for which Dr. Morena found to be stimulants, such as wine, &c. Inoculation for small-pox was introduced into England this year by Lady Mary Wortley Montagu. The Princesses Amelia and Caroline were among the first thus treated. A sore throat, attended with dizziness and pain in the limbs, prevailed in London and was fatal to numbers; measles were rife in America.

Plague did much mischief at Vienna, Hungary, and in the East: it continued for two years. Dysentery raged in Upper Saxony, and ergotism in Silesia.

A.D. 1723, yellow pestilence prevailed in many parts of Spain, especially in the cities on the coast. Lisbon also suffered from pestilence, the predominant symptom of which was black vomit. Miliary fever prevailed at Frankfort on the Maine. Don Vincente Boibid, a celebrated physician of Madrid, published a work entitled 'Breve Reflexion ó crisis

medica sobre el Dolor Colico, con animo de remediar tan continuos y largos tormentos como suele excitar quando molesta por medio de un anticolico especifico, que le vence en media hora: y á veces en una.' This physician attributed the pestilence prevalent in Spain to the use of fruit and snow-water. The year following, epidemic catarrh prevailed chiefly amongst children in the principality of the Asturias. Palermo was nearly destroyed by an earthquake; 6000 persons perished. From this period unto 1727, malignant fevers prevailed all over Europe and America. Louis, king of Spain, died this year from small-pox, as did also the Duchess of Bedford. In the latter year, inoculation was practised on criminals.

A.D. 1726, a series of anomalous diseases was prevalent in Granada, and caused great mortality. Leprosy began to spread in the city of Lebrija, in Andalusia; it lasted until 1764. About this period a severe earthquake shook Palermo in September, and upwards of 6000 persons were buried in the ruins.

A. D. 1727, epidemic mania prevailed in Spain. Dr. Casal makes mention of its having carried off many members of the Council of Pilona. Carthage was visited by pestilence, similar to that which prevailed in the year 1637.

A.D. 1728, influenza was epidemic in Spain: it was named by Pedro de Rotundis, 'un catarro sufocativo.' Yellow fever was very fatal to the inhabitants of Charleston, United States: it was termed 'a bilious plague,' from its severity. A similar disease carried off great numbers of the population of Carthagena and Portobello, in South America: the most fatal symptom was black vomit. This disease made great havoc among the crews of the vessels under Don Domingo Justiniani, and of the galleons under Lopez Pintado. Epidemic pestilence was rife in Poland, Austria, and Siberia. The island of Bourbon, as described by Don Ulloa, was afflicted with plague, as was also Tripoli, Damascus, and Aleppo. Scarlet fever raged in Edinburgh, and chincough in England. About this period, miliary fever, or sweating

pestilence, prevailed, with great mortality, at Chambery, Annecy, St. Jean de Maurienne (Savoy), at Carmagnola, Vercelli, Ivrea, and Biella. The seven following years, 1729-1735, pestilence raged in Vienna, Pignerol, Fossano, Nizza, Rivoli, Asti, Larti, Acqui, Basle, Silesia, Thrasburg (Lower Rhine), Trino, Frésneuse (Lower Seine), Vimeux (Seine et Oise), Orleans (Loiret), Plouviers (Loiret), Meaux, Villeneuve, St. George (Seine et Maine), Bohemia, Denmark, Sweden, and Russia.

A.D. 1730, the Thames rose to an uncommon height, and inundated Westminster. An earthquake nearly destroyed the whole of Chili. Epidemic pestilence commenced at Cadiz; the disorder was called 'el vomito negro,' and it was supposed to have been imported from South America; at least so states Dr. Don Francisco Fernandez Navarette: it extended in all directions to various parts of the Continent, and persisted unto 1738, in which year a frightful dysentery invaded the coast of Malaga and Seville, and, in fact, all the seaboard of Andalusia. During the prevalence of this pestilence, animals were first affected, especially those that were domesticated; birds which fed on grain also suffered severely, such as poultry, pigeons, &c. Numerous insects, called by the Spaniards 'largostus,' were generated previously to the breaking out of this epidemic disease.

A.D. 1731, a shock of an earthquake was felt, on the 29th of July, in China; and on the 20th of the March previous, Naples was so shaken, that many houses were thrown down, and upwards of 2000 persons were destroyed.

A.D. 1732, 1500 persons died, in London, of pestilential fever, in one week, during the month of April; yellow fever was destructive to the inhabitants of many of the States of America. The year following, influenza overspread Spain and many other parts of Europe. The island of Mallorca suffered greatly. This epidemic gave rise to many excellent dissertations, which were published in the city of Palma.

A.D. 1734, an earthquake destroyed many houses and five churches in China, and many persons also lost their

lives; it occurred in the month of August. About the latter end of this year, in the month of October, according to Albrecht, an epidemic dysentery, with swelling of the head, attacked poultry, especially geese, in the environs of the town of Coburg: they died with their bills open.

A.D. 1735, plague destroyed thousands in Egypt; various pestilential epidemics raged for more than ten years, afflicting France, England, Scotland, Ireland, Holland, Calabria, Switzerland, New Spain, Aleppo, Tangiers, and Smyrna; yellow pestilence, or fever, ravaged the United States of America, especially the cities of New York, Boston, Charleston, Philadelphia, and Albany; it extended also to the tribe of the Mohigan Indians, and was rife in the West Indies: in Barbados it caused great mortality. During the winter, in North America, which was cold and wet, a distemper, affecting the throat and respiratory organs, nearly exterminated the young children.

A.D. 1736, the lower orders of the population of Seville suffered from privations and disease, especially in the suburban districts, at St. Roque, Calzada, and Bernardo. In the same year, epidemic pestilence raged with great violence, at Grand Cairo, from the 1st of February to the 12th of March: more than 100,000 persons were carried off; 7000 were buried daily for some days. On the 24th of December, the river rose to an extraordinary height. The summer of this year was intensely hot in England, and swarms of gnats were so immense all over the country, especially in Salisbury in Wiltshire, as almost to constitute a plague; they appeared in dense clouds, and ascended above the height of the steeple of the cathedral. Ergotism again broke out in Silesia, in Suborth, and at Wealtemburgh, in Bohemia. Dr. Saine describes the disease as beginning with a disagreeable titillation of the feet, as if ants were creeping on them (formication), which was soon succeeded by a violent cardialgia, or pain in the stomach; the hands were next affected, then the head—many cried out that their hands and feet were on fire: epilepsy was one of the concomitants of the disease.

A.D. 1737, a comet was seen, and there was an eruption of Vesuvius.

A.D. 1738, another comet was seen in February; drought prevailed in Spain, and famine and pestilence followed: the malady, however, was not of a mortal character.

A.D. 1740, epidemic disease was rife in Ireland; it proved fatal to great numbers in the city of Dublin, and continued throughout the following year. Lord Chancellor Jocelyn, writing from Ireland, in the year 1741, to his brother Chancellor, Lord Hardwicke, in England, mentions the distressed state of the country at this period, owing to the entire failure of the potato crops, which was followed by famine and disease to a frightful extent: fevers, attended with convulsions, were epidemic in Germany: and the vomito negro was destructive to the inhabitants of Spain; it prevailed at Malaga, and in many other of its provinces. Pestilence broke out at Tobolsk, in Siberia, first attacking horned cattle and horses, and afterwards human beings; it prevailed in the form of pestilential carbuncle.

A.D. 1742-3, two comets were seen. In the archives of the Franciscan Convent of San Diego de Carthagena it is recorded that pestilence prevailed amongst the members, nearly all of whom suffered severely, three only escaping.

A.D. 1745, a murrain broke out amongst the cattle in Turkey, and was succeeded by a dire plague, which raged with great violence, especially in Constantinople. This murrain among the cattle spread and afflicted various parts of Europe; it was very destructive in Switzerland, then diffused itself through Germany, Poland, and Holland, and ultimately reached England: its progress was marked by the appearance of a bluish mist in the atmosphere. Professors Sauvages and Chaumel speak of a murrain as occurring about this period in the Viverais district of France: puerperal fever was epidemic there at the same time. An earthquake destroyed Lima and Callao, in Peru, on the 28th of October; out of 3000 inhabitants at Lima, only one individual escaped.

A. D. 1747, a comet was seen; and on the 14th of October the Thames rose to a very great height. In the spring of this year, there broke out in the territory of Huesca of Aragon, an epidemic of malignant catarrh, which was succeeded by petechial fever. In the Asturias, in March, the weather was variable and inclement, and an epidemic icterus, or jaundice, attended with fever of a malignant type, broke out, and continued unto the following May: it caused great mortality. Two hundred thousand of the inhabitants were taken off by pestilence in Constantinople about this time. Dysentery prevailed in various parts of the United States of America, especially at Hartford and Newhaven; yellow fever succeeded, and continued unto the year 1755.

A.D. 1748, swarms of locusts settled down in and about London, doing much damage to the vegetation. Two comets were seen this year.

A.D. 1750, two earthquakes were experienced in London, the one on the 8th of February, the other a month after, on the 8th of March. The then lord mayor, one alderman, two judges, and the greater part of the jury, with a number of spectators, caught the jail distemper in the month of May at the Old Bailey. About this period, a shock from an earthquake was felt at Philippoli in Romania, by which more than 4000 persons were destroyed. Two years after, in the month of August, 200 mosques and a great part of the city of Adrianople were destroyed by a similar catastrophe.

A.D. 1751, there was an eruption of Vesuvius; famine and pestilence were rife in the kingdoms of Isen and Cordova; the breaking out of the pestilence being attributed to the arrival of mendicants at the ports of Malaga. The year following, a terrific storm was experienced in Charleston, South Carolina, United States, on the 15th of September, during which the town and neighbourhood were inundated, from which there resulted much loss of life and destruction of property. Two years subsequently, there was an eruption of Vesuvius; and on the 15th of July, a severe earthquake

was felt in the Morea: it swallowed up many villages and their inhabitants. Constantinople and Grand Cairo suffered from a similar catastrophe on the 2nd of September; two-thirds of their houses were destroyed, and upwards of 40,000 persons. A mortal distemper seized on cattle in England; 30,000 cows were reported to have died of it in Cheshire alone. From this period until 1760, epidemic pestilence prevailed in various parts of the globe; dysentery of a malignant type in the Northern States of America, malignant fever in Normandy, gangrenous sore-throat in Ireland and France, and a petechial fever in Constantinople, which destroyed 150,000 persons. Famine and plague carried off great numbers in Syria, Smyrna, and Cyprus: in the latter place disease destroyed 30,000 victims; Aleppo, Jerusalem, and Damascus also suffered from epidemic pestilence. In the former place (Aleppo) the winter had been severe, and had destroyed all vegetation; the cold was very intense; the mercury in Fahrenheit's thermometer, exposed in the open air, sunk entirely into the ball of the tube; millions of olive-trees that had hitherto withstood the blast of fifty winters were blighted, and thousands of persons perished from cold. The failure of the crop in the succeeding harvest occasioned a universal famine with all its attendant miseries. In many places the inhabitants were driven to such extremities, that women ate their own children as soon as they had expired in their arms from the want of nourishment; and numbers of persons from the mountains and adjacent villages came daily to Aleppo to offer their wives and children for sale for a few dollars, to procure a temporary subsistence for themselves, and dogs and human creatures might hourly be seen scratching together on the same dunghill, and contending for a bone or a piece of carrion. Pestilence followed closely on the heels of this famine, which lasted till 1758; 60,000 persons were swept away by it in the city and its environs. Vast numbers of horses during this year died in London and in the neighbourhood from a murrain. Yellow fever of extreme malignity swept the West Indian Islands and the

coast of Africa, as recorded by Lind, who describes the mortality to have been produced by a pestilential vapour, which arose in the south-east of the Guinea coast, and traversed immense swamps: in several towns, among the negro population, the mortality was so great that there were not sufficient left to bury the dead, and the gates at Cape Coast Castle were shut for the want of sentinels to guard them, the whites suffering equally with the blacks from the fatal scourge. Yellow fever was also rife in the United States of America during this and the following year, especially in New York and Philadelphia. An atrabilious fever raged at Senegal.

A. D. 1755, on the 24th of April, an earthquake was felt in Peru; it destroyed the city of Quito and great numbers of its inhabitants. On the 27th of the following May, the island of Mitylene, in the Archipelago, was destroyed by an earthquake, and about the same period the city of Lisbon was shaken, and 70,000 persons perished in the ruins. Half the island of Madeira was laid waste by an earthquake. This awful commotion extended 5000 miles, even to Scotland.

A. D. 1757, on the 29th of October, an earthquake was felt in the island of Malta: a severe frost was experienced in England during this and the following year; a comet was also visible. About the same time a severe shock of an earthquake was felt in the Azores. The year following, 1759, three comets were seen; an earthquake on the 5th of December destroyed Tripoli, and was as severely felt at Balbec.

A. D. 1760, a violent earthquake occurred on the 30th of October in Syria; it did a great deal of mischief: there was an eruption of Vesuvius. Until this time, extraordinary as it may appear, there was not any such thing as a privy in Madrid: it was customary to throw the ordure out of the windows at night, and it was removed by scavengers the next day. An ordinance having been issued by the king that every householder should build a privy, the people

violently *opposed* it as an arbitrary proceeding, and the *physicians* remonstrated against it, alleging that the filth absorbed the unwholesome particles of the air, which otherwise would be taken into the human body! His Majesty, however, persisted, but many of the citizens, in order to keep *their food wholesome*, erected their privies close to their kitchen fireplaces.

During this year the city of Carthagena again suffered from epidemic pestilence, which persisted until 1763; the disease was a tertian fever, which became very virulent during the dog-days, and caused great mortality amongst the inhabitants of that city and the adjoining provinces. The island of Cyprus suffered from plague about this time. It also prevailed generally over the Ottoman empire: Constantinople, Aleppo, Smyrna, Salonica, Broussa, Aden, Antioch, Antab, Killis Ourfah, Diarbekr, Monsol, and many other large towns and villages experienced its severity. Scanderoon, for the first time this century, suffered considerably; the other Frank settlements on the sea-coast of Syria being exempt, with the exception of Tripoli.

A. D. 1761, in the northern parts of the United States of America, severe catarrh or influenza prevailed in the spring; it changed its character to malignant yellow fever during the summer and autumn. This disease was also prevalent in the West Indies. The symptoms were slight cold, followed by extraordinary prostration of strength, laborious respiration, cough, obtuse pains at the precordia and in the chest and limbs. The malady presented the signs of a bilious distemper, the countenance becoming yellow; insensibility or coma, and sometimes delirium, supervened, when the patient was taken off with all the symptoms of a regular bilious plague or yellow fever. About this period a deadly epizootic broke out among the dogs in Madrid; it extended over the entire kingdom: the disease, it would appear, was confined to the canine race, no other kind of domestic animal having suffered from it.

The Paving Act, which may be regarded as a useful

sanitary measure, was passed in England. A tremendous shock of an earthquake, attended with volcanic eruptions, was experienced in the Azores in the month of April.

The year following, A. D. 1762, a comet was visible; and on the 9th of February the river Thames rose to a very great height. The heat and drought this year in the United States of America exceeded all the extraordinary seasons hitherto noticed. The inhabitants were greatly distressed for want of water; bilious remittent fever raged in many of the States in the following autumn, especially in Philadelphia. At the Havannah, about the same period, great mortality was occasioned by a similar epidemic. Pestilence also raged in Siam and in Bengal, in Syria, and in various parts of Egypt. The influence of similar seasons was experienced in England and Ireland, and also in France, where pestilence was rife.

The summer of 1763 was moist and sultry; the Indians of Massachusetts and at a place called Martha's Vineyard in the United States of America were swept away in vast numbers by a yellow or bilious pestilence. An epidemic catarrh called 'the snuffles' was very destructive to cattle, especially to horses, in Denmark. Pestilence again prevailed among the canine race at Madrid; the poultry died of it at Genoa, and horned cattle in France, as also in Sweden. This extensive prevalence of epizootic disease indicated a pestilential condition of the atmosphere and a disturbed state of the seasons: the disease first attacked and proved fatal to dumb animals, and afterwards man became its victim: its ravages were attended with great mortality.

Malignant fever at this period assailed all Naples, destroying, as has been asserted, 20,000 inhabitants: it was preceded by famine. An earthquake was felt at Comorra, in Hungary; 1500 houses were thrown down, and many lives were lost, the sufferers being buried under the ruins.

A. D. 1764, on the 26th of December, a severe shock of an earthquake was felt at Lisbon: a comet was visible. The treatment of small-pox was greatly modified about this time by the introduction of the cooling regimen, which was first

recommended in England by the Suttons. In the same year epidemic pestilence broke out in the principality of Estremadura, and was very fatal: various other parts of Spain suffered from the invasion of a similar disease; it carried off great numbers at Cadiz, and its outbreak was attributed in a great measure to the distresses occasioned by the Portuguese war; it was a miliary fever, attended with glandular swellings, especially of the parotids. Rain fell heavily during the months of April and May in Carthagena, and consequently tertian fevers were prevalent; and there perished of that disease upwards of 2000 persons in the city during those two months. Pestilential disease ravaged Suabia, and both Scotland and Ireland suffered greatly at this time from epidemic pestilence.

Lethal epidemic disease prevailed in Austria; and in the greater part of the United States of America bilious remittent fever, similar to that prevalent in the West Indian Islands, carried off vast numbers. The pestilence in Ireland was marked by all the symptoms of bilious remittent or yellow fever.

A. D. 1765, on the 4th of June, an earthquake was felt along the banks of the Ganges: a shock was experienced on the 19th of May previously in the Pyrenean mountains. A severe storm occurred on the east coast of Britain, and many seamen perished in consequence. Spital, near Berwick, suffered greatly from this catastrophe.

A. D. 1766, there was an eruption of Vesuvius: earthquakes were felt in various quarters this year; at Constantinople on the 22nd of May, when 880 persons were buried in the ruins of the fallen houses; a severe shock was experienced at Cuba, and St. Jago was completely demolished, on which occasion hundreds lost their lives. The earth opened in the Abruzzi in Naples, and many thousands were engulphed. The river Taina on the 14th of November overflowed its banks, and destroyed more than 12,000 houses with their occupants at Montauban in France. Two comets were visible about this period. The summer was hot and dry all

over Europe, and in both the Americas; vegetable productions were scarce in all these countries, and the winter following was severe in both hemispheres; the mercury fell in many places 20° below zero. Malignant catarrh swept over Europe; a murrain destroyed cattle in the United States of America, the horses and horned cattle, &c. perishing, especially in New England and New Jersey. A similar murrain attacked cattle in Pomerania, Brandenburg, and Mecklenburg in Germany. The following year, puerperal fever was fatal in Normandy. Small-pox carried off at Pekin nearly 100,000 persons, principally young children. There was about this period an eruption of Vesuvius; Spain suffered from severe epidemic pestilence. In the month of December a catarrh of a peculiar type broke out in Madrid, extending far and wide over the Continent: it was not particularly fatal.

A.D. 1768, a severe storm destroyed ninety-six public edifices and 4048 private houses on the 25th of October at the Havannah; many lives were lost in the ruins. Pestilence again broke out in the city of Carthagena, and raged with great violence and fatality. Vast numbers of caterpillars infested Northampton and Massachusetts, in the United States, and destroyed all traces of verdure. The summer following was hot and rainy; small-pox, dysentery, and hydrophobia prevailed in Boston and in other parts of the States: anginas were also rife. Yellow pestilence raged in the island of Jamaica. In Holland, about this period, 30,000 head of horned cattle and sheep were destroyed by a murrain.

Irregular seasons deteriorated the produce of the earth, and famine and pestilence were the consequence. A dreadful famine and pestilence in the year 1769 carried off, as has been recorded, *three millions and upwards* of the inhabitants of Bengal. The falls of rain had been unfrequent and of short duration, so that every thing in the shape of vegetation was parched up and unproductive. The grain crop was almost a total failure, and as the two former crops had been scanty, the unfortunate people in the hour of extremity had

no resource; they were driven by the cravings of hunger to the woods, where they perished in thousands, after devouring the bark of trees and the remains of putrefying vegetables.

Various parts of Spain suffered from epidemic pestilence this year. Don Manuel Antonio Bela, a physician of some eminence, wrote and published a work entitled 'Una Disertacion sobre los cometas que no causan ni anuncian enfermedades publicas,' for the purpose of refuting the idea that comets and other meteoric phenomena influence the production of epidemic disease.

A comet was noticed this year; and the year following, 1770, was remarkable for the severity of an earthquake which was experienced in the island of St. Domingo. There was also an eruption of Vesuvius, and deadly pestilence raged in many parts of Europe, carrying off great numbers. The mortality from murrain at this period was great among cattle in Sardinia, Holland, Flanders, &c. In Poland and Russia alone upwards of 20,000 persons died of famine and disease: it is recorded that 168,000 fell victims to a dire pestilence which prevailed in Bohemia. In the city of Constantinople, during this year, 1000 bodies were buried daily for some weeks. During this and the following year, 1771, a singular epidemic destroyed the foxes in the United States of America. Tertian fevers of a malignant type again broke out in the city of Carthagena, and the persons residing in the convent of St. Diego again suffered from pestilence, which continued the two following years: out of fifty-three padrès of the convent, one only escaped. Puerperal fever was fatally epidemic at Vienna.

A. D. 1771, there was an inundation in the North of England, and there occurred also an eruption of Vesuvius. A. D. 1772, strange phenomena were observed with regard to the body of Thomas Beaufort, Duke of Exeter, which had been buried 345 years in the abbey at St. Edmund's Bury; when the leaden coffin was opened, the flesh, hair, and toe and finger nails appeared perfect and sound, as though he had not been interred many hours. On an incision being made on the

breast, the flesh cut as firm as in a living subject, and there was even an appearance of blood. A similar phenomenon was observed A.D. 1494, when the body of one Alice Hackney, which had been interred 175 years, was accidentally dug up in the churchyard of St. Mary's Hill, London: the skin was whole, and the joints of the arms, legs, &c. were pliable, the parts exhibiting a natural appearance, as though she were but recently dead. A dreadful hurricane happened this year in the Caribbean Islands. Plague raged at Moscow, and, it is stated, carried off 133,299 persons within eighteen months. Epidemic catarrh and measles prevailed in the United States of America; small-pox was rife in Scotland; and the pestilence, which was still raging in Carthagena, extended to other provinces of Spain. Plague carried off great numbers in Bassora; 80,000 persons are said to have fallen victims to the frightful pestilence; in short, famine and disease about this time, induced by long and continued drought and excessive heat, destroyed an incredible number of lives in the peninsula of the Ganges. Baraillon gives an account of a most singular pestilence with which France was afflicted in the year 1774: it was termed Epidemic Convulsions, 'sur une epue d'epilepsie qui reconnoit pour cause le virus exanthematique malaire.' A similar malady about this period was rife in the United States of America. In England, epidemic catarrh prevailed to a great extent; it was attended with sore throat. Blight or mildew destroyed the oats in Scotland, and in the United States of America wheat suffered from blast or blight; a bed of oysters perished from disease at Wellflat Harbour, at Cape Cod, and the lobsters disappeared from York Island, in the United States. In the month of July, a murrain broke out among the horned cattle in the province of Labourd, in France, and proved very destructive. It was a sort of ramollissement of the brain, according to the authority of Ignacio de Michelena, Juan de Ordoi, and Martin de Lorz. Dr. Alsinet, a celebrated physician of Aranjuez, wrote a work this year on the treatment of the tertian fever, which had been so prevalent all

over Spain: his plan of treatment consisted in giving emetics during the intervals of the paroxysms, and bark immediately on the approach of the cold fit; in cases of pernicious and malignant tertian, he gave double doses. Puerperal fever was again epidemic at Vienna, and was attended with great mortality.

A. D. 1773, the town of Guatimala in Mexico, with all its riches and eight thousand families, was swallowed up by an awful earthquake, and every vestige of its former existence obliterated, the spot being now indicated by a frightful desert four leagues distant from the nearest town.

The Severn this year was turned from its natural course by a great mass of land moving from its place across the current near Bildewas Bridge in Shropshire: this happened on the 27th of May. The year following, a severe earthquake was felt at Altdorf in Switzerland on the 10th of September.

A. D. 1775, on the 8th of September, a severe earthquake shook Wales and its neighbourhood. On the 19th of October, thunderstorms did much damage in the North of England; it was about this time that the three Dublin packets foundered at sea: and on the 14th of November, a tremendous hurricane was experienced on the coast of Holland.

A. D. 1776, on the 10th of July a shock of an earthquake was experienced at Andries in Italy, which overthrew the town, and destroyed vast numbers of its inhabitants.

A. D. 1777, a dreadful hurricane visited St. Petersburgh; it was attended by an inundation on the 14th of September, which did much damage.

A. D. 1778, an earthquake did much harm at Smyrna on the 3rd of July. This same year, after the British army had vacated the city of Philadelphia, United States, bilious, yellow, or remittent fever prevailed to a great extent amongst the inhabitants. The plague was rife at Constantinople; an epidemic angina ravaged Manchester and various other parts of England, and the city of Carthagena in Spain again suffered from pestilence, similar to that which was observed

A. D. 1771; it continued, in fact, in an aggravated form, the following years until 1779, and caused great mortality.

A. D. 1780, the winter was severe, both in Europe and America. In England, on the 14th of January, the mercury fell 26° below zero, and in Glasgow 46° below the same point. The summer of this year was very hot; bilious remittent fevers raged in Philadelphia and in other parts of the States; a 'break-bone fever,' as it was called, also prevailed extensively, but was not fatal. The thermometer at times stood at 102°. At this time cholera prevailed in the East Indies, and is reported to have carried off at Hurdwar, during a festival which is annually held there, some 20,000 persons, and during the following year, 1781, to have assailed, in its most malignant form, a division of the Bengal troops stationed at Garigani. During the summer of 1780, epidemic pestilence broke out in various parts of Spain: it first made its appearance in a village of Passages in the month of May, and continued for some time; it was supposed to have arisen from intramural burial, the stench from the overcrowded graveyards being intolerable. The burning heats, this year, may be said to have caused much suffering in several parts of Europe, there having been scarcely any rain; the summer having been succeeded by a heavy, cloudy winter, predisposed the inhabitants of various parts of Europe to catarrhal fevers: pernicious epidemics also prevailed in many parts of Spain; and a malignant fever was rife amongst the inhabitants of Pampeluna: the city of Olite was also similarly affected; after a time it extended to Bericayú, Andosella, Mendaira, Toledo, Vidaurreta, and other cities and places. In Pampeluna it persisted for six years, until 1787. A disease termed 'Andalusian fever' prevailed this year in South America among the Spanish colonists, and also at Rio de Janeiro and other Brazilian settlements. At Tauris, 15,000 dwellings were demolished, and vast multitudes were swallowed up by an earthquake.

From the year 1781 down to 1789, epidemic pestilence

committed great havoc in various parts of the world. In England, an epizootic was fatal to horses and horned cattle: of one hundred and sixteen horses located in one barrack stable, all but thirteen were attacked; seventy-eight died. The Channel fleet were great sufferers from epidemic disease; 11,732 sick were sent to Haslar Hospital; 1457 had scurvy, 240 dysentery, and 5539 suffered from severe fever. This may be taken as a specimen of the health of the British navy down to the close of the eighteenth century. Epidemic puerperal fever, about this period, was very fatal in London. Measles raged in New York, Philadelphia, and in other parts of the United States; and numerous cases of hydrophobia occurred in the more southern States. In the month of July the weather was so hot that the thermometer in the shade stood at 103°. In the state of Maryland there was great mortality among horses and horned cattle; and fish at this period died in vast quantities on the coasts of Lapland and Norway.

A.D. 1782, in the month of July, there was a dreadful fire at Constantinople, which destroyed upwards of 7000 houses; and in the following month, a similar catastrophe caused the destruction of 20,000 more, many lives being lost: from the consequent crowding together of the inhabitants, and from other suffering, famine and pestilence followed. The epidemic pestilenee which attacked the Bengal troops the year previously at Garigani, extended to Sir E. Hughes' squadron then stationed in the East, and caused great mortality. The inhabitants of the provinces of Languedoc and Roussillon were attacked with a terrific epidemic, which caused great devastation. The governor of Catalonia, in consequence of the great mortality, sent Dr. Masdevall to inquire into the character of the epidemic, whether it was, as it was publicly reported to be, the true plague, and whether it was or was not contagious. Earthquakes during this year were frequent in Calabria; they continued from time to time for four years, until the end of 1786, producing many fissures, landslips, lakes, ravines, falls

of the sea-cliffs, and other changes, which taken together afford one of the finest examples of the complicated alterations which may result from a series of subterranean movements, even though of no great apparent violence at the time. During this calamitous period, the city of Messina in Sicily was destroyed, and 40,000 persons perished by an earthquake; the city of Thessalonica suffered from a similarly severe shock. A most intense frost commenced this year in England on Christmas-day; it continued until the end of February in the following year. A frightful epidemic broke out in the city of Lerida, which ran rapidly through the extent of Tarragona, Manresa, Llasanes, Solsona, Igualada, and Villafranca del Panades; it soon after prevailed over nearly the whole of Catalonia. Pestilence broke out also in Tortosa and in several of its districts; it soon extended all over the kingdom of Aragon. This disease was principally variola.

A. D. 1784, nearly all the districts in the province of Alcarria, especially Pastrana, suffered from pestilence,—an epidemic tertian fever, which commenced in the month of November. About this period, there was a great scarcity of water occasioned by the previous hot and burning weather during a dry summer. The following spring was rainy and damp, and there broke out exanthematous fevers, rheumatisms, and intermittent quotidians, throughout all Spain; the small-pox, which had prevailed the year before, and which at first appeared in a benign form, soon degenerated, and assumed a malignant character. Dr. Don Felix Ibañez, a physician of the city of Huete, but long resident at Pastrana, describes the various diseases of this period in a work entitled 'Topographia Hipocratica ó Descripcion de la Epidemia de Calenturas, tercianas intermittentes, malignas, continuo-remittentes perniciosas, complicadas que re han padecido en la provincia de la Alcarria desde el ano 1784, hasta 1790, y 1791, y riguentes,' &c.

The following year, 1785, epidemic tertian prevailed in Andalusia. Dr. Don Juan Manuel Alvarez, of Constan-

tina, wrote a work on the pernicious intermittent fevers of this and the previous years, which had been so extensively prevalent in the Peninsula: the disease was felt more severely in Carthagena than during any other previous year; it was exceedingly malignant, and destroyed vast numbers. Intemperate seasons were attended with inundations from rains, so heavy as to form lakes in some places. The city of Lerida suffered from variola.

A. D. 1786, in the city del Viso, on the confines of the province of La Mancha, a frightful epidemic broke out, and destroyed great numbers of the inhabitants. The city of St. Roque suffered in the autumn from a similar pestilence: it proved to be a form of pernicious intermittent. Dr. Don Josef Masdevall's practice was adopted in its treatment, and proved as successful as it had hitherto done; it consisted of what he termed 'la opiata antifebril y mixtura antimonial.' This year, Brother Miguel de Acero y Aldovera wrote a work on the pernicious effects of intramural interments. The vomito negro prevailed this year in the Havannah; its outbreak was attributed to the emanations from putrid hides. In the Madras Reports, it is stated that pestilential cholera was very destructive at Arcot.

A. D. 1787, there took place on the coast of Coromandel an inundation proceeding from a severe hurricane; a district called Uppora was overflowed by the sea on the 20th of May, when upwards of 12,000 persons lost their lives, and much property in cattle and houses was destroyed. There was a violent storm that did much damage in England and Ireland. There was also an eruption of Vesuvius.

A. D. 1788, severe frost occurred in England, commencing in November, and continuing till the following March.

In the month of October, A. D. 1789, an almost universal darkness overspread the land in America, and the most severe pestilences on record occurred all over the United States, in the form of anginas, croup, ulcerated sore-throat, putrid bilious fevers, &c. Dr. Manson describes one of the epidemics thus; "slight influenza, stinging pain in the jaws

and limbs, soreness of the muscles of the neck, attended with severe fever." The measles, which occurred the year previously, appear to have been the prelude to a series of epidemics which raged for thirty years. Influenza was very severe in the cities of New York and Philadelphia, and rapidly affected the other parts of the States, wherever the same conditions of weather and atmosphere prevailed: this disease also traversed the barren wilderness, seizing on the Indian population, attacked seamen at sea, and raged with great mortality through the western hemisphere, from the 15° to 45° of northern latitude. Scarlet fever was also prevalent at Philadelphia, and carried off great numbers of the young. These epidemics generally exhibited as the predominant feature the superabundance of biliary secretions, which were vomited.

A. D. 1790, the winter was very mild in America, there having been but little frost until the month of February. In spring, catarrhs prevailed; plethoric and consumptive persons suffered most, and were the principal victims: measles appeared in autumn. The year following, 1791, the winter commenced early, and was very severe; the spring and summer were dry and cold: catarrhs again prevailed: yellow fever broke out in New York, and carried off numbers: scarlatina and hooping-cough were also rife. About this period a kind of black worm, resembling a caterpillar, appeared in Maryland, and destroyed the grass and corn; they were represented as appearing in legions. At the same time a blight destroyed the fruit and other vegetable productions; and another distinct species of worm, called the palmer-worm, answering to the description given in Sacred History, infested the land, devouring even the forest trees, and destroying all woodwork. The thermometer at Salem rose to 80° for fifty days, and for twelve days stood at 90°: in various other parts of the States it varied from 90° to 102°. The bilious plague, as reported by Dr. Rush, prevailed at Philadelphia. The island of Grenada in the West Indies suffered from a similar pestilence. Bilious remittent fever

was also prevalent on the coast of Africa: the plague raged in Egypt, and typhus fever committed great ravages in England: yellow pestilence laid waste the Havannah; and a severe murrain afflicted the horned cattle in Hungary, Servia, and other European countries.

A. D. 1791, a tremendous earthquake was felt in Sicily, which destroyed many lives and much property; it was equal in severity to the shock experienced the year before at Borgo di San Sepolcro, during which an opening in the earth swallowed up many houses with their inhabitants. On the 2nd of February, this year, the Thames rose to an extreme height, and overflowed many parts of Westminster.

A. D. 1792. This was a pestilential year in Egypt; it is recorded that 800,000 persons died from plague. The winter of the previous year, 1791, was very severe, and the spring wet and rainy in the southern parts of the United States; the summer was cold up to June, cold north-west winds prevailing. In May and June, locusts appeared in the State of New York, and devoured the grain; the wheat insect continued its ravages with great destruction to the crops in Long Island and also in Maryland and north of the Elk ridge. In the month of July, yellow fever raged terribly, causing great mortality in the city of Charleston. A kind of caterpillar destroyed the lime-trees in Philadelphia, and in the month of August, scarlet fever carried off numbers in that city, as well as in New York, and in a place called Bethlem.

A. D. 1793, the spring was dry, the summer intensely hot and showery, with hail, and the autumn dry and cold. A fatal dysentery swept off vast numbers in Georgetown, Coventry; a nervous fever was prevalent at a place called Fairfield. Yellow fever raged to an alarming extent in Philadelphia, carrying off in the course of four or five months upwards of 4000 persons: it was also fatal in Boston. In the following year it prevailed in Baltimore, and at Norfolk in Virginia. About this period a similar epidemic caused great destruction in the island of Dominica

and other of the West Indian islands: in Dominica it continued for three years, until 1796.

A. D. 1794, an awful earthquake was felt at Naples, and Vesuvius, pouring forth its flames, overwhelmed the city of Torre del Greco. The following year, the weather was uncommonly bad, the spring cold and late, the summer suffocatingly hot, damp, and rainy, whilst south winds were prevalent,—the fruits perished from mould. There was a disease among vegetables, especially the potatoes and cabbages. A dense moisture penetrated into the inmost recesses of the houses, even into desks, bureaux, &c., and the walls appeared covered with a damp white mould, which destroyed the paper-hangings. Millions of mosquitoes and other insects were generated; in fact, a pestilential constitution of the air, answering to the description given by Hippocrates and other writers, was evidenced by these signs. Yellow fever raged with great violence in many parts of the United States of America, viz. in Philadelphia, New York, Charleston, &c., and continued until 1800. "In the whole course of my life," says Professor Kemp, writing to Dr. Baily on yellow fever, "I never experienced a state of air so distressingly debilitating, and unfriendly to my spirits." On the 6th of February, this year, a severe shock of an earthquake was felt at Vienna. At this period 10,000 persons lost their lives in three towns of Turkey by a similar catastrophe.

## CHAPTER VIII.

### FROM A. D. 1795 TO 1848.

A. D. 1795, a severe earthquake was felt on the 17th of July at Manchester and in its neighbourhood: there was a second shock afterwards on the 18th of October. On the 6th of November, in the same year, a violent storm destroyed many lives and much property in England. On the 24th of the following month, December, a severe frost set in, and continued until the 23rd of January. Murrain committed great ravages in Lombardy amongst horned cattle. Professor Count Moscati and Drs. Deho, Bonvicini, and Gherardini published a description of its symptoms, amongst which were observable great rigidity and tension in the necks of animals, and also great sensibility along the spinal column, towards the termination of the malady. Two years after, 1797, a similar epidemic prevailed in the Venetian States, especially in Friuli: horses, sheep, and poultry suffered from this malady, as well as horned cattle. A severe earthquake, this year, 1796, destroyed the whole country between Santa Fé and Panama, including the cities of Cusco and Quito; 40,000 of the inhabitants were in one second hurled into eternity. The seasons were intemperate in the United States. Bilious remittent or yellow fever prevailed at New York, Charleston, Boston, Newburyport, Philadelphia, and in various others of the States. The year following, 1797, the epidemic continued to cause great mortality in the States, especially in Norfolk, Providence, Portland, and Savannah, and it extended thence to New Orleans: it commenced with the symptoms of common remittent fever, and increased progressively in violence, carrying off numbers of the inhabitants.

A. D. 1798. The preceding winter was severe and long. The summer, this year, was remarkably dry and sultry; the rivers afterwards inundated the adjoining country, heavy rains falling at the same time. Catarrhs, pleurisies, and sore throats prevailed, with bilious fevers. In the autumn, grasshoppers infested the country round about Pennsylvania and New England, and a pestilential fever commenced and spread dismay among the inhabitants: many were carried off by it. The citizens of New York, Philadelphia, Wilmington, Newport, Albany, Boston, Portsmouth, and New London, suffered greatly from this disease, which exhibited both bubo and carbuncle, with many other symptoms of the true plague. A peculiar fog or vapour was observed in New York during the most fatal period of this pestilence, especially in the month of September. Lake and marsh fevers prevailed also about this period in the low and swampy districts, such as Milford, &c. This yellow pestilence was less generally characterized by inflammatory action, and venesection was attended with less salutary effects than on former occasions.

A. D. 1799. In Barbary, 3000 died daily from severe pestilence: at Fez alone, 247,000 persons are said to have perished in consequence. In Morocco, pestilence was preceded by famine, induced by extreme elemental disturbance. At Mogador it broke out, in April, in the form of virulent small-pox; by July it had assumed the type of the most deadly species of plague: this fatal disease ceased in October, after carrying off numbers. At a small village called Diabet, situated about two miles south-east of Mogador, it raged with great violence for twenty-one days, carrying off during that period one hundred persons out of one hundred and thirty. Many populous villages, in the extensive Shellah province of Haha, suffered in a similar manner. The birds deserted their former abodes during the prevalence of this pestilence. The Emperor, it is reported, had the plague twice during the time.

The summer in the United States of America, this year, 1799, was sultry and dry, with much thunder and lightning,

succeeded by deluging rains; the autumn was variable, and the winter severe; the following spring was cold and late, and yellow fever showed itself to a certain extent in many of the States.

A. D. 1800, malignant yellow fever commenced at Baltimore, and raged in Boston, and in various other of the principal districts of the Union. In the autumn of this year, Cadiz became desolate from a similar pestilence; by the middle of September the deaths amounted to 200 daily: at this period the air, from its stagnant state, says Arejula, became so vitiated, that its noxious qualities affected even the lower orders of animals: canary birds died with blood issuing from their bills; and in none of the neighbouring towns, which were afterwards infected, did any sparrows appear during the epidemic. We saw, continues Arejula, many of the domestic animals die with some of the same symptoms as those presented by persons labouring under the disease. Dogs were affected by the epidemic more than any other animals; the cats next, and the horses, then poultry and canary birds; dogs and cats were also subject to hemorrhages, but more so to the black vomit, and to dark fœtid evacuations. The horses which I saw die, he says, had that marble coldness of the extremities, or the general convulsions, so remarkable in this disease. Another author, Fellows, states that all the physicians in Cadiz and in Malaga who have written on this disorder, and with whom he had conversed, confirmed to him the facts as detailed by Arejula. The inhabitants of Xeres suffered greatly from this yellow pestilence; it also prevailed at Malaga, and in various other parts of Spain: it persisted unto 1804.

A. D. 1801, anginas, pleurisies, and yellow pestilence continued to prevail for several years in the United States of America, and in other places: typhus was rife in Ireland and England, especially in London, from which city and countries it is scarcely ever absent.

A. D. 1802, a very hot and dry summer was succeeded in November by incessant heavy rain: thick fogs spread over

the country, and enveloped such places in central Germany as were inaccessible to ventilation; amongst others, the small Franconian town of Roettingen, situated on the river Tauber, and surrounded by mountains. Towards the end of the month an extremely fatal disease broke out, which was without example in the memory of its oldest inhabitants, it being totally unknown to them previously. The young and strong were suddenly seized with pain and anguish at the heart, with violent palpitations, and lacerating pains in the nape of the neck; profuse, sour, ill-smelling perspiration broke out over the entire body, and a suffering, as though a violent rheumatic fever had seized on the tendinous expansions, accompanied this terrible malady: in the worst cases a spasmodic trembling ensued, the patient fainted, the limbs became rigid, and death closed the scene, frequently within twenty-four hours from the commencement of the attack.

A. D. 1803. Influenza overspread the British Isles in the spring of this year, causing great mortality: in severity it was similar to those prevalent A. D. 1762 and 1782, as described by Sir George Baker.

Tommasini describes a yellow pestilence which raged at Leghorn and at Lucca A. D. 1804. A similar disease was also prevalent in the West Indian Islands about this period, especially in the islands of Martinique and Grenada. The year following, 1805, spotted typhus, or petechial pestilence, was rife in various parts of the United States, and caused great mortality.

A. D. 1809, epidemic pestilence suddenly made its appearance amongst the British troops occupying Portugal.

A. D. 1810, in the month of October, yellow pestilence appeared at Gibraltar: of the population of this fortress, amounting to 14,000, only twenty-eight escaped the malady; twelve of these had had the disease previously in the West Indies and elsewhere. A. D. 1811, puerperal fever was prevalent and lethal in Somersetshire.

A. D. 1812, Constantinople suffered dreadfully from plague,

which carried off 160,000 persons. Since the severe winter of 1794-95, this country (England) had not experienced such an intense and continued cold as occurred during the present season, from the 30th of November, 1813, to February, 1814. The early part of December was raw, chilly, and occasionally foggy; frost, which was severe, commenced the day after Christmas-day: on the 27th it was accompanied by a thick fog, which, towards noon, became so dense as to render all objects invisible at a short distance, even with the aid of torches, so as to prevent the departure of mail-coaches and of other carriages; numerous accidents occurred in and near London. This singular and dark state of the atmosphere, which was extremely offensive both to the eyes and lungs, continued for the space of seven days, with scarcely any change, even at noon, except the appearance of a dim light during the latter; and as the frost increased, the houses, shrubs, and trees became thickly covered with the freezing humidity of the fog. This state of things terminated at the end of the week with a heavy fall of snow, which continued until the streets were covered to the depth of several feet, to the great interruption of all communication with the country for several days. In the last week of January, from a partial thaw, immense masses of ice were brought down the Thames, which, on the recurrence of frost, became so united as to be capable of supporting the weight of great multitudes of people, who were entertained in the booths erected upon the ice during the fair near Blackfriars Bridge. The wind blew almost invariably from the east and north-east, and was frequently very high, rendering the cold more intense: on many days the temperature was as low as 15° of Fahrenheit, and it was said to have fallen on some nights as low as 11°, and even lower. The effects of this severity of the cold were aggravated amongst the lower orders by the difficulty of procuring fuel, in consequence of the great scarcity of coals, which cost double the usual price. Persons of all ages suffered from severe influenza, attended with fever of a rather malignant type:

children, and persons who had passed the middle period, as usual, suffered the most, from their vital powers being less energetic than during the intermediate periods of existence. During the months of October and November (1813) typhus fever became more frequent than it had been for several years previously: it prevailed mostly in the filthy courts of Saffron Hill, near Hatton Garden, which are almost exclusively inhabited by the lowest kind of Irish labourers. Scarlatina was also rife, but was not very fatal. These diseases were not, however, confined to the places where they first appeared; they soon showed themselves in the crowded districts in the eastern and north-eastern parts of the town, and in the Borough, and were greatly prevalent in the alleys about Essex Street, in Whitechapel, near Golden Lane, Old Street, and in many filthy courts about Cow Cross and Chick Lane, in the vicinity of Smithfield: they were also rife in the districts near Kent Street, in the parishes of St. George and St. Saviour, in Southwark, in the courts running into Shoe Lane, Clare Market, the Strand, at Somers Town, and, singular to say, they broke out last of all in St. Giles', the district proverbially the receptacle of beggary and vice.

During this year (1813), yellow pestilence again made its appearance at Gibraltar; it raged from October till the month of December, when it subsided, after causing great destruction of the troops then in garrison. The civilians suffered an equal mortality. In the year following (1814), this epidemic again broke out in the month of August, and disappeared about the end of October; it was not again heard of on the rock until 1828.

A. D. 1813, plague made its appearance in the island of Malta, where it had not been known previously for 138 years,—not since the year 1675. From the month of April to that of November, 4483 persons were carried off by it; it also raged at Gozzo, Corfu, &c.

A. D. 1815, the harvest was unfavourable all over Europe, and several provinces of Naples were threatened with famine.

On the 27th of December, a suspicious epidemic broke out at Noya: it consisted of a hot nervous fever, rapidly running its course, with gangrenous and malignant boils and carbuncles; women were the first and most frequent victims; children also suffered in a similar proportion; old persons were more exempt. The disease soon afterwards appeared at Cagliari, and it is stated not to have presented any of the characteristics of the plague, although it was very fatal. This pestilence was preceded by a famine, which commenced among the poor: other diseases prevailed at the same time: the prevalence of a south wind seemed to increase its propagative powers; it continued about six months, when it ceased suddenly in the following year, 1816.

About this period, A. D. 1815, pestilential disease was developed in the island of Corfu; it first made its appearance at a little village called Marathea, in the district of Lefchimo. Tully states that nothing could equal the wretched appearance of the village,—poverty, with all its miserable train of attendants, presenting itself to view at every step. Near this village stagnant pools and marshes everywhere presented themselves: rains set in earlier than usual, and were followed by a long drought and heat, unnatural for the advanced season of the year, with a constant sirocco or south-east wind: so rapidly fatal was this pestilence, that more than a fourth part of the inhabitants were carried off in a few days. It is recorded that out of 700 seized in this small village, only 78 recovered!

During the same year, the fall of rain in the East was remarkable, especially during the rainy season, when it was indeed excessive,—and that which rendered it the more worthy of notice was, that the Ganges, the Soane, and the Coossee rivers burst their boundaries, and destroyed a vast extent of agricultural property in the neighbouring districts. The cold season that followed was also damp, and not bracing; and again the hot or summer season that followed was also moist. The winter which followed was unfortunately also damp, and the atmosphere during the sub-

sequent summer, A. D. 1816, was exceedingly loaded with moisture in the shape of dense fogs; drought followed, for the heat was intense; few north-westers, it is said, occurred to temper the air, and those which did were accompanied with little or no rain: towards the end of the month of May, the thermometer had risen to 98° in the shade,—a very uncommon height in Bengal. This scorching, burning weather continued uninterrupted unto the middle of June. In the remaining portion of June and in July the rains fell moderately in Calcutta and in its vicinity; but in the month following, August, the showers became scanty and rare, while the days and nights were oppressively hot. In the western part of the provinces the great drought which succeeded dried up the rivers, so that apprehensions were entertained for the safety of the rice cultivation. The 1st of September ushered in a most unexpected change: rain came down in deluges, and continued unabated during the entire month: it caused a greater and more extensive inundation than had happened within the recollection of the oldest inhabitant.

The morbid effects of a long train of anomalous weather then became evident amongst the people. Low fevers of a typhoid character prevailed, accompanied by a malignant sore-throat,—a disease previously unknown there, according to the Bengal Report.

A. D. 1817 was the commencement of a pestilential period, during which disease raged rampant all over the habitable globe, and so continued for a series of years: yellow pestilence prevailed with great violence, and caused great mortality at Savannah, New Orleans, Mobile, Natchez, the Havannah, Baltimore, Charleston, and elsewhere in the United States.

Pestilential cholera commenced and committed great ravages, especially in India, where it prevailed with an intensity and fatality equal to those of a similar malady which was fatal to thousands of the human race A. D. 260. This pestilence broke out in the month of August, it is said, at a place called Jessore, a populous town in the centre of the

Delta of the Ganges, the capital of the Sunderbunds, distant from Calcutta about sixty English miles, and there it caused great mortality, proving fatal to almost all on whom it seized. Jessore is described as being a crowded, filthy place, surrounded by impenetrable and marshy jungles, and consequently exposed to all the horrors of a malarious and ill-ventilated atmosphere. In the course of a few weeks, 10,000 of the inhabitants perished in this district only. In the September following, it broke out in Calcutta, where it committed great ravages. It spread thence along the banks of the Ganges in a north-westerly direction, not then extending further to the east than Muzufferpore. It also attacked with great violence the English army assembled in Bundelcund, under the Marquess of Hastings, on the banks of the Sinde, in the most central part of India. Five thousand men perished between the 15th and 20th of November, 9000 of the troops dying altogether during this attack of the epidemic. The roads were covered with the dying and the dead.

A.D. 1818. This dreadful epidemic extended to Jaulnah, on the Madras side of the Indian peninsula, and in August of the same year it reached Bombay; in fact, it may be said to have extended itself to every part of India, and to many of the neighbouring countries, which are to this day suffering from it, but in a mitigated degree. In March, 10,000 perished from it in Banda and its environs. Hutta, Saugur, Ougein, and Kotah also suffered in a similar proportion. An equal number died of cholera in the same month in Allahabad. In April and May, Cawnpore, Meerhut, Agra, and Delhi were attacked, and the disease raged in these towns with great severity. About the same time, Lucknow and Fyzabad, cities in Oude, were ravaged by it, and 30,000 perished in Goruckpore alone. In October, the disease broke out in Madras, and in Ceylon in the following December. During this period, it proved very destructive to the inhabitants of the Mauritius, raged violently in the Burmese Empire, in the kingdom of Aracan, and in the

peninsula of Molucca. Yellow pestilence also raged at the same time in the United States, and continued the two following years, 1819 and 1820, carrying off great numbers in many of the States, especially in New York and Philadelphia; it was also rife in the West Indian Islands, in Bermuda, in British Guiana, and in various parts of the South American continent.

The year 1819 was marked by great commotions of the elements, and a general spread of epidemic pestilence all over the world; its prevalence was remarked in all the four quarters of the globe, each portion having been visited by the forms of disease peculiar to its several climates. A tract of country, the Ullah-Bund, in the Delta of the Indus, extending nearly fifty miles in length and sixteen in breadth, was upheaved ten feet; while adjoining districts were depressed, and the features of the Delta completely altered. The island of Penang, Sumatra, Singapore, the kingdom of Siam, and the isles of France and Bourbon were infected with pestilential cholera. In the single town of Bankok, the capital of Siam, 40,000 persons perished by this dire destruction.

During the year 1820 cholera extended to Tonquin, Cambogia, Cochin-China, Southern China, Canton, the Philippines, &c.

A. D. 1821, Xeres was visited by yellow pestilence; the British troops suffered severely, and the civilians in greater proportion; it prevailed also with great destruction at Cadiz, a city which had suffered between the years 1800 and 1821, from eleven epidemic pestilences of a similar type. (*Vide* Professor Salva, of Barcelona, on Yellow Fever.)—Sir James Fellows, in his reports on the pestilential disorders of Andalusia during these years, asserts, as before remarked, that the air from its stagnant state became so vitiated that its noxious qualities affected even dumb animals. The winter in America this year was mild until the end of December; the spring was wet and cold, and the summer dry and sultry, with uncommon heat; all vegetable productions

seemed to wither, and the drought was so great that the wells or springs were dried up; the thermometer rose to 90° and 100° in May; and intermittent, remittent and bilious fevers, with dysenteries, prevailed in the swampy districts. In the month of August, yellow pestilence made its appearance at New York, and was soon rife at Boston, Philadelphia, Baltimore, and at Charleston; it was also prevalent at New Orleans, Natchez, Mobile, Alabama, and the Havannah, and extended along the low banks of the Mississippi river. From this period until 1822, the disease, although diminished in severity, yet carried off great numbers in the various districts.

Destructive cholera, which may be said not to have subsided at all, visited, this year, 1821, the island of Java, Bantam, Mendura, Borneo, and various other parts in the Indian Archipelago. In Java it is reported that 102,000 persons were carried off by it, 17,000 of whom belonged to the town of Batavia, one of the most unhealthy towns in the East. This same year, this dreadful pestilence, in the month of July, reached Muscat in Arabia, in its western course, where 10,000 persons lost their lives, and during the remainder of the year committed great ravages in various places in the Persian Gulf. In the following month, August, it appeared in Persia, and raged with violence at Bassora and at Baghdad. In Bassora, 18,000 lives, being one-third of the population, were sacrificed in eleven days, and a similarly fearful destruction befel Baghdad. In Bushire, where it broke out in July, 1821, its ravages were most fearful. The bazaars were closed, the houses abandoned, the unburied dead lay in heaps in the streets, and the surviving population sought safety in flight. In Shiraz one-eighth of the population perished.

In the years 1822-24, it revisited Tonquin and also Pekin, Central and Northern China, the Moluccas or Spice Islands, Amboyna, Macassar, Assam, and most of the other eastern countries. In Ispahan the epidemic did not inflict much damage, but at Erzeroom it attacked the army of the vic-

torious Abbas Mirza, and swept his ranks from front to rear, the terror-stricken soldiery throwing away their arms, and flying from before the invisible destroyer. During these years, 1822-24, extending to 1827-29-30, this pestilence prevailed in many of the principal cities of Persia, and also in Chinese Tartary: it ravaged most of the populous cities of Mesopotamia, Syria, and Judæa, and reached within 150 miles of the Georgian frontiers of Russia: it was also rife at Orenburg and Astrachan, beyond which it seems not to have extended until the years 1828-29, when it appeared at Orenburg, the capital of the province of that name, situated on the Tartar frontier, 400 miles north of the Caspian Sea. During this period, disease was rife in various other parts of the world.

There was a great scarcity, A. D. 1822, and epidemic typhus prevailed to a great extent in the west of Ireland, involving other parts of that unfortunate country. An awful earthquake occurred about this period at Chili, by which an immense tract of ground, 1000 square miles, was elevated from two to six feet above its original level, and a great part of the bottom of the sea remained bare and dry at high water, with beds of oysters, mussels, and other shell-fish adhering to the rocks on which they grew. The fish being all dead, and exhaling most offensive effluvia, disease consequently ensued. Ordinary typhus prevailed in Paris, during which time many cases of spasmodic yellow fever, as it was termed, were observed.

A. D. 1823, the Laplanders are stated to have suffered greatly in their cattle from murrain; upwards of 5000 head were carried off,—wolves even being destroyed by it, so intense and general among the lower animals was the distemper. Yellow fever this year prevailed in Lisbon and in the Island of Ascension, and also in various settlements on the African coast, especially at Sierra Leone. The two years following, 1824-25, pestilence was rife in Lisbon. Yellow pestilence, in the latter year, devastated many places on the coast of South America, especially in the Brazils. Yellow

fever prevailed at Rio de Janeiro. The drought was excessive, but was succeeded by heavy rains, common in this quarter of the globe. At one settlement alone, Aracaty, the mortality in a short time was estimated at 30,000. Great numbers died during their efforts to reach the coast for water; wild as well as domestic animals perished. The drought, with its attendant misery and deadliness, was so great, that to this day the inhabitants speak of the calamity with horror. About this period, small-pox committed great ravages in Hamburgh; and at Grand Cairo 30,000 persons died of pestilence.

A. D. 1826, epidemic typhus prevailed all over Ireland, and caused great mortality. Dr. Graves, in his Lectures, refers to very many well-marked cases of yellow fever. He says, "We have had this year numerous cases which in their symptoms and their morbid anatomy agree essentially with yellow fever,—yellow skin, black vomit, &c."

A. D. 1827. In the early part of this year, Groningen, Friesland, North Holland, Belgium, and Lower Germany suffered from epidemic influenza. The previous summer (1826) was followed by moist weather, and the countries were damp from inundations. The epidemic raged with such mortality, that the Dutch Government found it necessary to adopt strong measures to relieve the sickness which affected nearly the whole population.

Yellow fever was prevalent in the United States; remittent fever was also rife in various parts of England; the symptoms amounted in severity to those of pestilence, and were such as had scarcely been seen in England since the days of Sydenham.

This year, a singular malady—a sort of rheumatic fever, occasioning great agony,—broke out in the island of St. Thomas, in the West Indies, and affected almost every one of a population amounting to 12,000 persons. It obtained from the negroes the cognomen of 'dandy fever.' It proved to be an exceedingly painful disease, crippling persons for weeks and months, and obliging them to move about on

crutches; it was, however, rarely fatal: it spread generally all over the West Indian Islands. A similar disease prevailed the year following, A. D. 1828, in Paris, and was considered by the Parisians as being of an extraordinary character. A writer thus describes the malady:—It was generally unaccompanied with any great degree of fever, but affected the whole nervous system in a most peculiar manner; especially by a most painful sense of formication in the hands and feet, as well as a degree of numbness which seized first upon the members, and thence extended over the whole body. The formication and painful numbness of the extremities were so characteristic of the complaint, that at Paris and elsewhere in France it was known by the name of 'mal des pieds et des mains.'

The cellular tissue, in this disease, became affected after a while; the hands and feet swelled, and œdema attacked the face and several other parts of the frame: immense numbers suffered from it in France. The sensations were compared to those caused by the punctures from the points of a thousand needles, or of some such sharp instrument; an intense degree of heat aggravated the sufferings, and many could scarcely move their body or extremities without great agony; cramps and spasmodic contractions were present in many cases; the digestive organs were greatly disordered, and symptoms of cholera morbus were sometimes developed in the course of the disease; eruptions of various kinds occurred on the body; sleep was prevented by excessive pain and general disturbance of the system; delirium sometimes supervened; the sight and hearing, and the sense of smell, were altogether lost in some, but in others only partially impaired. In some, convalescence followed in a few weeks; in others, not until several months had elapsed. Great numbers fell victims to the malady, and many perished ultimately from its sequelæ.

This year, A. D. 1828, Gibraltar was again visited by yellow pestilence, which attacked both the military and civilians; it commenced in the month of September; it broke out

among, and was for some time confined to, the filthiest and most crowded parts, or districts, on the rock, but it ultimately seized on all ranks and classes of society. It was observed to prevail to a greater extent and more severely in some situations than in others, particularly along the line of wall facing the sea,—few of the soldiers stationed there escaping an attack, so that it was soon found necessary to withdraw the sentries stationed in the neighbourhood. From this period to 1834, there was great famine in Italy; the seasons were moist and hot; repeated inundations occurred there, and south winds and summer fogs prevailed. The French army encamped before the city of Naples lost great numbers by pestilence. A disease called 'la trousse galante' carried off immense numbers in France. There were during this period great failures of the crops in England and elsewhere in Europe, occasioned by wet and mild winters, followed by hot summers: epidemic pestilence was the consequence.

The breaking out of epidemic pestilence in Orenburg, in August, A. D. 1829, was attended with some extraordinary phenomena,—the atmosphere was suddenly filled with dense masses of small green flies, which in Asia are looked upon as the forerunners of pestilence, and are therefore called plague-flies; the streets swarmed with these insects, and on quitting their houses, the inhabitants were literally covered from head to foot with them.

A. D. 1830. A blight or disease, this year, made its appearance in the potato and other crops in various parts of Germany, in Ireland, and in America. In 1832, it was more general and severe in some situations than in others.

Cholera about this period showed itself on the borders of the Black Sea, penetrating thence into the centre of European Russia, where it continued throughout the winter. Towards the beginning of autumn, it commenced with great violence in the Georgian frontier of Persia, having appeared in June, 1830, in the Persian province of Ghilan, on the Caspian shore; from the southern parts of which it ex-

tended northward, along the west Caspian shore, until it reached Baku, Tiflis, Astrachan, and numerous other places, in its progress into the very heart of the Russian empire. At Astrachan, from July to the end of August, 4000 died in the city, and 21,270 in the entire province. 2367 persons died of it in Saratov; and shortly afterwards, of 1792 Don Cossacks attacked, 1334 perished. At Penza, situate about 140 miles north of Saratov, 1200 of the population were seized in the course of a fortnight, and 800 sunk under it. At Nischnei Novgorod, where the epidemic soon afterwards broke out, 1863 persons were taken ill, of whom nearly a thousand died. The mortality in Bessarabia and Moldavia was appalling: Jassi, the capital of Moldavia, was almost depopulated. This insatiable malady continued to spread, carrying death in its course westward and northward, through Russia, Poland, Moldavia, the duchy of Posen, Silesia, and Austria, visiting Warsaw, with other towns in Poland, and extending, May, 1831, to Riga and Dantzic; and in June and July to St. Petersburgh and Cronstadt: it reached Berlin on the last day of August, Vienna in September, and Hamburgh on the 7th of October.

A. D. 1831, cholera followed the Russian army employed in the subjugation of Poland; it also proved very destructive in Warsaw and in many other places during the months of April and May. In June it prevailed in Cracow and other adjoining places, extending in its course to Gallicia, Hungary, Smyrna, and Constantinople; it raged with such intensity at Cairo, that 10,400 Mahomedans, besides Jews and Christians, were carried off. During this year, whilst cholera was progressing over the continent of Europe, it appeared at Mecca, where it proved very destructive to the 'Hadji,' or pilgrims. In August, it broke out at Alexandria, and nearly at the same time all the towns in the Delta of the Nile suffered from its violence. This year, when the pestilence was at its height at Baghdad, the population of the city was computed to be 80,000; of this number, 7000 perished during the first fortnight: the epi-

demic continued to increase in severity, until the maximum rate of mortality for some days was 5000 daily: 50,000 are supposed to have been carried off in this devoted city during the two months it was devastated by this awful pestilence. In destructiveness it was equal to any former visitation on record; it was, however, to be attributed, not so much to the effects of pestilential miasmata, as to concurring circumstances which obliged the inhabitants to congregate densely in particular parts of the city. The rivers Euphrates and Tigris are flooded twice in the year, first in the spring, from the melting of the snow in the mountains of Armenia, and afterwards in the autumn, from the periodical rains. The country round about was inundated, this year, to an uncommon degree, beyond any traditional example,—the lower part of the country particularly. At Baghdad the waters were for a time kept from bursting into the town by means of the walls, but on the night of the 26th of April a part thereof on the north-west side of the city was undermined, and fell. The waters immediately rushed in and caused the destruction of about 7000 houses, burying 15,000 persons in the ruins: many of these were lying sick of the pestilence; and there was besides a large number of unburied dead. In consequence of the daily fall or partial ruin of houses from the encroachments of the waters before their subsidence occurred, the inhabitants were crowded together, and from being deprived of their usual resources for the disposal of their dead, the sickening horrors of the pestilence were accumulated tenfold before the eyes of the unfortunate survivors, and thus constituted an additional aggravation of their sufferings. The burial-places were laid under water, and while the disposition and power lasted to bury their dead, every open space, says an eye-witness,—the streets, the courtyards of mosques, and even stables,—were turned up to furnish graves. In one stable-yard, which the terrace of our house overlooked, says the same writer, nearly one hundred graves were opened, and filled in the course of one day and a half; it was a fearful sight indeed to see the uncoffined dead

brought in barrows and on the backs of asses, and laid upon the ground, till the graves were made ready for them. As the mortality increased, the dead were thrown out into the streets, and were greedily devoured by the ravenous dogs which swarm in all the cities of the East. He did much, then, who took the dead of his household to the river side and threw them in. The pressure of famine was also greatly felt,—the inundation cut off all supplies from the country round about; no fresh provisions of any kind could be had, and although the higher classes, who generally had a stock of corn on hand, were preserved from absolute want, nevertheless respectable persons were seen in crowds begging from door to door for food.

To continue: about the month of May, an epidemic disease made its appearance in Paris, which on comparison presented symptoms analogous to those of the epidemic pestilence described by Sauvages as occurring A.D. 1743, and also to that described by Ruyoux, A.D. 1762. The term 'la grippe' was thought applicable to it.

As occurred in the epidemics of which we have spoken, and as has been observed in former times, and noted by Rivére, Senertus, Sydenham, Loes, Huxham, and many others, a remarkable analogy was noticed between the 'medical constitution' which had existed for some months past, and the development of this epidemic. All authors who have given descriptions of catarrhal epidemics similar to that of which we are writing, agree in saying that they have almost invariably followed cold and moist seasons, and that they seemed more immediately to be produced by sudden atmospheric vicissitudes.

These facts harmonize with those observed in Paris. The malady commenced with symptoms of coryza, attended by cough and snuffling; dyspnea, with severe bronchial irritation, supervened, when the paroxysm all at once became greatly aggravated. One symptom was remarked as being pretty general and prominent, viz., a feeling of lassitude and fatigue of the limbs, with more or less great moral pros-

tration: the disease was not very fatal, and generally lasted for eight or ten days. During this period an extraordinary epidemic prevailed at a village called Mandroros, in Russia, —gangrene of the spleen. From the singular nature of this disease, a description will probably be found interesting. It commenced without any premonitory symptoms; the patient was suddenly seized with a feeling of burning at the pit of the stomach, accompanied by an insupportable pain in the left hypochondria; lassitude, with vomiting of a greenish bitter fluid, bowels naturally active, urine scanty, loss of appetite, and laborious respiration. Putrid appearances supervened in the course of a few hours, followed by meteorismus, borborygmi, yellowness of the skin, and of the scleroticæ; facies Hippocratica, cramps, cold extremities, and death. This disease, it is said, was not contagious, but epidemic, and it is further stated to have resembled that which was called 'the plague of Siberia.' After death, decomposition of the corpses took place rapidly, a black spot first appearing over the splenic region. Necrotomy showed the spleen in an engorged and gangrenous condition.

In October, 1831, cholera made its appearance in Sunderland, and a month after in Newcastle-upon-Tyne; it visited Houghton-le-Spring, North Shields, Tynemouth, South Shields, Gateshead, and other places. The first appearance of it in London is reported to have taken place in the following year, 1832, in the month of February, in the immediate vicinity of the shipping; but solitary cases were met with in the close filthy quarters of the very poor, early in December. In Scotland it had made its appearance previously about Christmas; and in the following January, Leith and Edinburgh suffered greatly. During this period it broke out in France, Holland, and in the peninsula generally. In the summer of 1832 cholera prevailed throughout England, Scotland, Ireland, and Wales, and in the Channel Islands, Jersey, Guernsey, &c., and also among the emigrants arriving at Quebec; from the latter city it extended to Montreal, Kingston on the Lake Ontario, and to the surrounding

neighbourhood. Soon afterwards, New York and Albany, in the United States, were attacked, and in due time the disease extended to Philadelphia, to Newcastle on the Delaware river, and to many other parts of the United States; it raged at New Orleans, as did also yellow fever: it made its appearance at the Havannah in the month of July, 1833. During the spring of that year influenza spread over every part of Great Britain and Ireland: it had raged previously in Russia and the northern parts of Germany, where it had inflicted great mortality in its course.

On the 26th of March, Paris was again invaded by cholera, and the inhabitants of Calais also suffered greatly; in Paris, at least 20,000 persons had fallen victims to this scourge by the end of September. During this year and the following, it raged throughout Spain, and was especially destructive in Madrid. Numerous places on the borders of the Mediterranean were visited by this pestilence, and it re-appeared in London and in other places in this country, as well as in North America.

From the year 1833 to 1838, plague raged with great violence, carrying off vast numbers, in Constantinople, Cairo, Alexandria, and Smyrna.

A. D. 1834, cholera was rife at Gibraltar; it extended to the rock, and no one seems to have escaped the disease. A singular phenomenon, a shower of fish, was noticed on the 17th of May in the neighbourhood of Allahabad. The zemindars of the village have furnished the following particulars, which were confirmed by other accounts:—About noon, the wind being from the west, and a few distant clouds visible, there was a blast of high wind accompanied with much dust, of a reddish yellow colour, with which the atmosphere was greatly charged. The blast appeared to extend in breadth about 400 yards; immense trees and large buildings were thrown down, and when the storm had passed away, the ground all about the village was found strewed with small fish to the extent of two bijahs: the fish were all of the chalwa species (*clopea cultrata*, Shakespear's Dic-

tionary); they were a span or rather less in length, and from one sear to one and a half in weight; when found they were all dead and dry. The Jumna runs about three miles south of the village, and the Ganges fourteen w. by E. The fish were not fit for eating, and it was said that when put in the pan for dressing they turned into blood!

The writer of a history of cholera, published in the 'Lancet,' says: "From the earliest times it has been a matter of common observation that plagues and murrains among the lower animals not unfrequently either preceded or accompanied the visitations to which mankind were subjected. Thus, at the siege of Troy, we are told by Homer:

μετὰ δ' ἰὸν ἧκε·
Δεινὴ δὲ κλαγγὴ γένετ' ἀργύρεοιο βιοῖο.
Οὐρῆας μὲν πρῶτον ἐπῴχετο, καὶ κύνας ἀργούς·
Αὐτὰρ ἔπειτ' αὐτοῖσι βέλος ἐχεπευκὲς ἐφιεὶς
Βάλλ'."

In India, we are informed that poultry and dogs frequently perished during the prevalence of cholera, and with similar symptoms. At Marienburgh, in Prussia, in the year 1831, the fish in the large ponds in that government are all said to have perished during the prevalence of the epidemic, and forty tons of them were buried from the single pond of Dinperburgh. In Warsaw, some examples of a disease resembling cholera were also noticed among the lower animals.

In the beginning of this year, A.D. 1834, the Egyptian dominions of the Pasha suffered greatly from the ravages of pestilence or plague. It first appeared in Alexandria, where it was reported to have been brought from Malta: sanitary precautions were adopted, but the prejudices of the people rendered them unavailing, and they were consequently abandoned as being useless. By the end of February, the deaths in Alexandria amounted to 200 daily. The disease then extended to Grand Cairo, and soon after stretched up the valley of the Nile, sweeping off the greater part of the population. In the month of March, the deaths were com-

puted to be from 300 to 400 daily at Cairo; in May they had increased to nearly 2000. The town of Fua, situated on the banks of the Nile, containing a population of 2500 inhabitants, was stated to have lost 1800 in a very short period. The distemper disappeared as the year advanced, but its ravages, together with the long-continued military exertions of the Pasha, left Egypt almost depopulated.

In the early part of the year 1835, there happened an eruption of Vesuvius, which has been thus described by an eye-witness:—A new crater having burst out, a stream of red-hot lava issued therefrom, in the direction of Castelmare, spreading itself over several miles in a few hours' time, its course being marked by flames rising in volumes from the ground over which it flowed. The intense heat occasioned by this body of fire was felt at Sorrento. The same year, an earthquake was experienced in South America on the 20th of February; it caused the destruction of the cities of Talar and Carico, with the towns of Conquenes, Linares, and Chillian: not a house was left standing in a place called Conception, and the workmen who were engaged repairing the cathedral of that city were buried in the ruins. In the month of June, hail and thunderstorms did much damage in various parts of England; on the 9th, 10th, and 11th, different parts of the country suffered greatly; the destruction of glass in the neighbourhood of Cambridge, on the 9th, was estimated at £2000. In Newmarket a similar loss of property occurred. In Durham the lightning struck the western tower of the cathedral, and hurled down an immense mass of stone, which, alighting upon the pavement beneath, was dashed into innumerable fragments, at the moment when a party of students belonging to the university, who had been inspecting a monument recently erected, alarmed by the crash, rushed from the cathedral; two of the party were killed instantly by the falling ruin, and ten others were severely wounded. About this period, in the month of January, the little village of Raffhaten, on the frontiers of Wallachia, was the locality in

which there occurred the singular phenomenon of a shower of meteorolites: about 6 A.M., on the 29th of January, the inhabitants were aroused from sleep by a noise as of a heavy shower of hail, which was immediately succeeded by a violent crashing of windows; great was the astonishment subsequently to find that the earth, for the space of nearly two leagues in circumference, was covered with a vast number of small stones, the smallest of them being about a quarter of an inch in diameter, while the largest were about the size of a marble; they were of a light slate colour, and very heavy, as much so as pieces of metal of the same size; when put into the fire, they burnt like coal, emitting a considerable quantity of gas at the same time.

On the 10th of August the shock of an earthquake was felt in different parts of the county of Lancaster: at Clitheroe two shocks were experienced,—the first, occurring about twelve at night, was slight; the second happened about half-past three in the morning; a rumbling noise like distant thunder was first heard, and was instantaneously followed by a violent shaking of the doors, windows, and furniture in all the houses in the district; many persons started from their beds in great terror, and rushed into the streets. It was felt at Downham, Wisewell, Pendleton, Milton, Waddington, and in all the surrounding villages to Blackpool. The shock was also felt at Liverpool, at Ulverstone, Kendal, Garstang, Preston, and Blackburn, where it caused serious and general alarm.

Cholera, this year, 1835, was rife at Leghorn, where it carried off sixty or seventy persons daily. On the 25th of August, Odessa suffered from a severe shock of an earthquake; it was first felt about five in the afternoon, when a thick smoke or vapour arose at the foot of Mount Ard-scheh (on the side of which Kassarich is situated), from which columns of flames burst with a tremendous noise; it was like the eruption of a volcano. At the same moment the earth was felt to rock, and a terrible earthquake began, the shocks of which continued for seven successive hours, ac-

companied with heavy thunder; persons felt as though they were on the ocean when agitated violently by a storm: about two thousand houses were thrown down; confusion and terror were at their height; the inhabitants fled into the country, but many were overtaken in their flight and buried in the ruins: an incredible number thus perished. Up to the 1st of September, there were three or four shocks daily, but of a trifling nature, doing but little mischief. About this time the inhabitants of Kassarich, who had taken up their abode in the fields, or fled into the villages, were able to return to the town; all the villages to the distance of more than 140 miles had suffered dreadfully; a great number of lives had been lost in most of them, and many houses and other property had been destroyed. The following are those who suffered the most;—at Tanlusia upwards of sixty houses were thrown down, and many lives lost; great numbers were killed at Tapirarchi, and Kerwer suffered greatly. The village of Mantzofir was that which suffered the most. In Welekes only one house was left standing, and great numbers lost their lives. Wersan was completely swallowed up, as was also Kumetzi, on the site of which a great lake afterwards arose. This year, 1835, may be said to have been marked by a series of commotions; for in the month of November, in the middle of the night, an earthquake was felt generally throughout Calabria, Citra, &c.; it was followed by ten shocks at intervals. In the midst of these commotions, Castiglioni, a commune in the district of Cosenza, was levelled with the ground, and the greater part of the population met an untimely death. The small village of Bonello shared a similar fate. In Leppano, in Ronda, in Casole, and various other places, great sufferings from the falling of the houses were endured. Epidemics were prevalent all this year and the year following, 1836, in various parts of the globe. In Europe, America (North and South), and in the greater part of the West Indian Islands, an apoplectic, pernicious fever, as it was termed, was prevalent in the northern hemisphere.

A. D. 1836. For two days the weather was exceedingly boisterous, and the wind blowing hard from the north-east. On Sunday, the 1st of May, the stormy winds increased, the land was darkened with heavy clouds of dust, and the Thames all day appeared as rough as a troubled sea. The effects of the storm were visible both on the land and sea: numbers of houses were unroofed, and nursery gardens, with other property, destroyed.

On the 18th of October, at about eight in the evening, the heavens presented one of the most splendid of those phenomena known as the 'auroræ boreales,' or northern lights. There first appeared a large luminous arch extending nearly from north to south, from which streamers extended very low in the sky, running from north-east to south-west, and increasing in number until they began to approach the zenith, apparently with an accelerated velocity. Suddenly the whole hemisphere was covered with them. This splendid scene, however, lasted only about forty seconds: the variety of colours disappeared, and the beams lost their lateral motion, and were converted, as is usual, into flashing radiations, which kept diminishing in splendour until the whole disappeared, leaving only a pale white light near the horizon.

A. D. 1837, cholera prevailed at Rome, causing great mortality, from 200 to 300 dying daily. Of the frightful mortality of this dire scourge one writer states, that in the Indian peninsula, from the years 1817 to 1830, of a population numbering somewhat more than 4,000,000, 1,800,000 became victims. Another author gives the following summary of the numbers carried off during this pestilential period:—

At Erivan and Tauris one-fourth of the population were destroyed. In Syria its ravages were extremely varied; in some localities, one-half of the populace were carried off; whilst in others, as in Tripoli, only one in about 200 died. At Tiflis, three-fourths of those seized perished; at Astrachan, two-thirds were carried off. Out of 16,000 attacked in the province of Caucasus, 10,000 fell victims; at Moscow, one-

half, and at Orenburg only one-fifth of the inhabitants perished. Out of 54,000 and upwards attacked in the Russian provinces, more than 31,000 died. In Hungary, 400,000 were said to have been seized, and more than half were destroyed. In this country (England) and in Wales, according to the Tables furnished by Dr. Merriman, from the Reports sent in for the Privy Council, out of 62,000 attacked, 20,578 died. In Ireland, out of 54,552 who were taken ill, 21,171 fell victims. In the countries of Asia not subject to European dominion, the data respecting the ravages of this disease were extremely vague and scanty, although there is reason to believe that in some of them they were more extensive than in India.

Yellow fever prevailed in various parts of the United States from the year 1834 until 1839, especially in Charleston. The causes were supposed to have been dependent on the extreme heat of the summer,—the elevation of temperature having been greatly beyond what was ever before known. The town was also crowded by strangers, who were employed to rebuild the city after its conflagration: they were badly lodged; and, in consequence of the high wages that were given, an immense number of dissolute and intemperate persons were attracted to the city. It was chiefly among this class that the disease prevailed.

A. D. 1837, influenza appeared in London in the first week in January, the weather during the preceding four months having been singularly wet, cold, and stormy; large quantities of snow having fallen and collected on the ground, even in the streets of London, where it lay for weeks together. The evaporation of the cold water, the result of the succeeding thaw, rendered the air cold and damp for a long time. In the month of November, this year, a hurricane of great violence occurred from the south-west. On Christmas-day there was a storm of wind and snow simultaneously all over the west of Europe,—snow having fallen even in the streets of Lisbon and Palermo: it fell so heavily in England, that it impeded intercourse throughout the country.

It was remarkable that snow fell at Canton in February, a thing unknown to the oldest inhabitants. The French army marching upon Constantina, in Algiers, suffered severely from three days of incessant snow. Tremendous hurricanes were experienced about this period over every part of the European and American seas. The weather in England was uncertain and fluctuating from Christmas to the middle of February, when influenza broke out: its duration in London was six or seven weeks; half the population were attacked, and the ordinary rates of mortality during this time were very nearly doubled. The aged and the very young were those who principally suffered. The inhabitants of Russia, Sweden, and Denmark suffered greatly. In Copenhagen, according to Dr. Otto, at least 30,000 were labouring under the disease at one time, in the month of January. Influenza was rife also in Scotland, where it was observed earlier than in England, and it broke out generally in the northern and eastern parts of England before it showed itself in the southern and western. Paris was visited by this epidemic a month later than London, the disease having previously prevailed in Calais and other intervening places. It broke out with great severity in the northern coast of Spain, being aggravated by the events of the civil war then raging in Biscay and Navarre. An epidemic having the character of the influenza of the northern hemisphere was also rife at Sydney and the Cape of Good Hope in the latter part of the year 1836.

Towards the latter end of March, 1838, yellow fever broke out among the garrison and the inhabitants in the island of Ascension, and committed great ravages. The disease was preceded by heavy rains for several days: large collections of water formed in consequence, which evaporated under the influence of a burning sun. One of the most extensive of these occurred in a foul and offensive site, surrounded by low dwelling-houses occupied by Portuguese prisoners, the majority of whom were attacked. The men employed in pumping out this water, complained much of

its offensive effluvium; they also suffered from the fever, and that most severely. The epidemic extended to the crews of several ships of war which touched at the island, and many of the seamen and officers perished.

A.D. 1839. In the month of February, an epidemic pestilence broke out, and proceeded with the rapidity of lightning at Mount St. Bernard. It was characterized by typhoid symptoms, and attended by a lengthened delirium, with occasional short, lucid intervals; out of one family consisting of twenty-one individuals, three only survived: it was confined exclusively to those living on the mountain. Epidemic erysipelas raged with great intensity at Algiers during this period; epidemic disease also prevailed in the district of Conlommiers in France, termed 'sudor miliaris.' The premonitory symptoms varied very generally: some of those attacked, when they awoke, found themselves inundated with perspiration; in some, the disease was preceded for some days by prostration of strength, with pains in the joints, &c.: a prominent symptom was a pain and sensation of smothering in the epigastric region; this feeling was greater or less in proportion to the quantity of perspiration, which in some was so profuse that on lifting up the bed-clothes a dense vapour was seen to arise: an eruption appeared after the third or fourth day; ten days after, the epidermis became wrinkled and fell off in the shape of scaly furfuraceous matter. The most fatal cases were those in which agonizing pains were experienced at the epigastrium. The autopsiæ exhibited vesicular eruptions in the intestinal canal. Petechial fever was very prevalent at St. Petersburgh this year (1839); it affected persons in a peculiar manner; during their illness, there was no delirium or appearance of disorder of the intellectual faculties; they spoke and acted sensibly, but after the subsidence of the malady, towards the end of the third or fourth week, they awoke as it were to a consciousness of their condition. Measles also raged epidemically. Yellow fever, this year (1839), was very destructive at Galveston in the republic of Texas.

A. D. 1840, blight appeared in Germany among the crops, especially the potato; it prevailed to so great an extent, Dr. Martius reports, as to cause a very serious alarm, and even to threaten the total extinction of that esculent. At the same time, the island of Arran, with other parts of the Highlands of Scotland, suffered from a similar disease among the potato crops: it prevailed there from 1839 to 1842, destroying at least half the vegetation.

A. D. 1841, plague raged in Syria, and at Erzeroum with great violence. During this period, extending to the year following, 1842, an epidemic religious ecstasy, as it was called, prevailed in Sweden. This singular epidemic malady was distinguished by two prominent and remarkable symptoms,—one physical, consisting of spasm, or involuntary contractions or contortions, &c.; the other, mental, being an ecstasy, more or less involuntary, during which the patients fancied themselves divinely inspired, and felt impelled to speak of supernatural things which they fancied they saw; they were occasionally moved to preach. It was the female portion of the community that suffered most. Anything offensive to the mind re-acted convulsively on the body, causing a sort of chorea, which it was attempted to distinguish or divide into two distinct forms of the disease, called mental and physical chorea. Several thousand persons were attacked by the disease; it was rarely fatal. Persons who had been affected, when convalescing, felt languid and debilitated, both in body and mind. Yellow fever at this period was fatal at Key West, East Florida, in the United States. Early in 1841 remittent fever occurred among the crew of the 'Wanderer,' a ship belonging to the Royal Navy, chiefly among the boats' crews who had been employed in the rivers Nunez and Pongos. Seventy persons were taken ill, and nine died. In the course of this year, remittent fever prevailed in many other Queen's ships employed on the African coast to put down the slave trade.

A. D. 1843. Blight seized on the potato crop this year throughout the United States, and also in British America.

Epidemic erysipelas, known by the popular name of 'the black tongue,' broke out in November, 1843, in Ripley county, United States, and traversed most of the townships of the Delaware, Dearborn county, &c. This disease, Dr. Sutton says, "has either assumed several characters, or we have several epidemics traversing the country together: one was erysipelas connected with cynanche tonsillaris, or swelling of some of the lymphatic glands in the throat; and another was considered to be a typhoid pneumonia, sometimes accompanied by enlargement of the axillary glands. These two diseases," continued the writer, "have been so intimately connected in my practice, that it has been a question to me whether the last was not a pulmonic erysipelas, the premonitory symptoms in each disease being alike, the character of the fever in each being the same, and it was often the case that one form of the disease changed into that of the other. The disease was not generally fatal." Boston, in the autumn of this year, was visited by an epidemic fever; it prevailed also at a place called Erie in the county of New York, during the months of October and November. This little town, or rather settlement, Erie, is made up of some half-dozen houses, containing a population of forty-three persons, of which number twenty-eight were seized between the 19th November and 7th December, ten of them dying of the disease. Some disputes existed in this little community, and the generality of them were of opinion that the wells had been poisoned by some evil-disposed persons: there was not, however, the least foundation for any such supposition. The disease commenced with rigors, chills, pain in the loins and head; typhoid symptoms supervened, the tongue becoming brown and dry; low muttering delirium was noticed, also a cough, with expectoration of a muco-purulent character. Another small town which about this period was visited by a very fatal disease, yellow fever, is an inland settlement in Wilkinson county, Mississippi, containing a population of 750 inhabitants. It is situated about forty miles from Natchez, on high ground, 340 feet

above the level or bank of the Mississippi, with a gradual slope in all directions; there is no creek, pond, or low land near the town,—in short, on a review of the town and surrounding country, it would be pronounced to be one of the most eligible sites in the south for a healthy settlement. At the time there was no yellow fever prevalent at New Orleans,—in fact, there had not been any case of the disease in any place along the river; consequently it could not have been imported. Nearly every one in the town was seized; and the mortality was great, seven to ten dying daily in so small a population for the first week. The disease was very rapid in its progress; the patients were suddenly seized with violent pains in the head and loins, and with burning fever; in a short time vomiting of a blackish fluid, similar to coffee-grounds, ensued, and in a few hours death closed the scene.

A. D. 1842 and 1843, cholera in a sporadic form raged with considerable violence in many parts of Persia, continuing at intervals during the two subsequent years.

A. D. 1844, yellow pestilence committed great ravages at Goree, in Senegal.

During the year 1845, the blight among the potatoes spread rapidly through Germany, Holland, Belgium, the northern parts of France, and over the greater portion of England, Scotland, and Ireland. This pestilence re-appeared the year following, 1846. A phenomenon worthy of notice was observed during the prevalence of this disease,—to wit, the existence of a mist or fogs immediately previous to the blight in the crops. In Holland, a thick stinking mist, which extended very widely, was observed in 1845, antecedent to the potato blight. M. Petit states that it was generally remarked in France that the disease made its appearance after a fog. In England the same phenomenon was observed.

In the spring of 1845 remittent fever broke out on board the 'Eclair,' while on the coast of Africa; the first persons attacked being those who had been engaged in boat-service. The vessel at the time lay off the Sherbro' river, and the

boats had been employed for some time exploring its creeks, and those in the Seabar branch of that river. The disease continued to spread among the boats' crews; and after a while those seamen who had not been out of the ship became subject to the fever, which committed such fearful ravages among them that at last the 'Eclair' was ordered home as a *dernier ressort*. The disease then presented all the characters of genuine yellow fever. On the voyage, the 'Eclair,' after having been refused pratique at Goree, put in at Boa Vista, one of the Cape de Verd Islands, where the crew were landed, and stayed some days; but the epidemic continued to seize its victims, and the crew consequently, both the sick and sound, were again received on board, and the vessel got under weigh for England. Before she reached Madeira, Captain Estcourt, Dr. M'Clure, and Mr. Hartmann, the assistant surgeon, died, Mr. Machonchy, the surgeon to the ship, expiring the day after. Mr. Sydney Bernard, assistant surgeon of the 'Growler,' having volunteered his services, was appointed in Mr. Machonchy's place, and performed his duties to the last. On the arrival of this floating pest-house in England, pratique was refused, and the healthy, the sick, and the dying were all kept on board. The result was the loss of several more lives, the disease not ceasing until about a fortnight after her arrival at the Motherbank. Mr. Sydney Bernard and Lieutenant Isaacson, the officer in command, were among its latest victims. The deaths on board from the endemic, from first to last, amounted to seventy-four. Fever prevailed very extensively in Boa Vista, after the departure of the 'Eclair,' and was very fatal; great numbers of the inhabitants were attacked.

In 1846, during the march of the Mormon worshippers across the desert, on their road to the new state of Deseret or Utah, after their expulsion from Nauvoo, they were greatly afflicted by endemic disease, chiefly remittent and yellow fevers. In one camp alone, 31 per cent. suffered, and the road was marked throughout with the graves of

those who perished. They also suffered much from a kind of strange scorbutic disease, which they named the 'black canker,' and which was frequently fatal.

At this time it was remarked, a few days before disease fastened on the potatoes, that a dense cloud, resembling a thick fog, overspread the entire country; it differed from a common fog in being quite dry and having a disagreeable odour.

To continue: this year and the following, 1847, epidemic remittent fever was prevalent in Scotland. In Glasgow it was noticed that a remarkable change had taken place in the epidemic constitution. Exanthematous typhus—a sort of continued fever, characterized along with other symptoms by an eruption over the body resembling measles, running a course on an average of twenty-one days, carrying off about 10 per cent.,—was supplanted by a remittent fever, sometimes attended with petechiæ, but not with the measly eruption: it was also often accompanied by jaundice. Epistaxis was very frequent; when the disease occurred in women about the menstrual period, the discharge was universally copious, and very many women in a state of pregnancy, who were seized with the malady, aborted; a crisis generally was formed on the seventh day; relapses were frequent,—in fact, almost invariable under any and every precaution: the mortality amounted to about 3½ per cent.; about 15,000 persons fell victims to this disease, principally those residing in the ill-ventilated and filthy parts of the town,—the poor and distressed. The smallness of the mortality compared with the severity of the symptoms, and the debility it left behind, was a matter of surprise. This malady appears to have been very similar to that which prevailed in Dublin in 1826. Rutty, in his diseases of Dublin during forty years, mentions several epidemics which resembled the malady at Glasgow. They occurred in 1740, 1745, 1764, and 1765. There is also some resemblance between this fever and that which prevailed in Dublin in 1816, as reported by Dr. Stokes.

In the early part of 1845 cholera prevailed with great

violence along the banks of the Indus, and about the same period proved very destructive in Affghanistan. Thence it extended into Persia, traversing that country from east to west, spread northwards into Tartary, and southwards into Kurdistan, and also into the pashalic of Baghdad. In September it prevailed at Herat and Samarcand, and in the November following at Bokhara. The extreme malignancy of the disease may be understood by the description given of many of the cases. "Those who were attacked dropped suddenly down in a state of lethargy, and at the end of two or three hours expired without any convulsions or vomiting, but from complete stagnation of the blood, which no remedies could restore to circulation."

During this period there took place in Kurrachee, near the mouth of the Indus, the most terrific outburst of the pestilence that can be conceived, which in the course of a few days swept off 8000 victims. The description given by an eye-witness of the scene at Kurrachee, as Dr. Gavin Milroy says (in his very excellent pamphlet on cholera), is so full of fearful and instructive interest, as regards some of the most striking characters of pestilential visitations, that we cannot withhold a brief account of its leading particulars:—

The heat had been intense during the first fortnight in June, but the station remained tolerably healthy. On Sunday, the 14th, the atmosphere was more than usually stagnant and oppressive; one correspondent who was present says, "The very heavens seemed drawn down upon our shoulders; the feeling was suffocating." A dark portentous-looking cloud crept up the sky as the troops were proceeding to church, and a sudden gust of wind threatened the building: it passed away almost as suddenly as it came; and when the worshippers retired, the air was as still as when they assembled. At the same hour did the pestilence appear; before midnight nine soldiers of the 86th regiment were dead, and men began to be brought to the hospital in such numbers, that it was difficult to make arrangements for their reception; it was a fearful night. With morning, came

the tidings that the pestilence was overspreading the town, and that fifty persons had already fallen victims to its deadly poison. How awful must have been the rapidity of the attack, when we learn that sometimes, within little more than five minutes, hale and hearty men were seized, cramped, collapsed, and dead! Men attending the burial of their comrades were attacked, carried to the hospital, and were themselves buried the next morning. Pits were dug in the churchyard, morning and evening; sewn up in their bedding, and coffinless, the dead were laid side by side, one service being read over all! For the next five days it raged with appalling fury; it then abated in its intensity, but continued to hover about the place for another week. Within less than a fortnight, 900 Europeans, including 815 fighting men, were swept away. Besides these, 600 native soldiers and 7000 of the camp-followers and inhabitants of the town had been hurried into eternity. About this time, a virulent fever raged at Sukkur, about 180 miles from Kurrachee, which proved fatal in a few hours. Hyderabad, intermediate between the two places, was visited almost immediately afterwards by cholera. Mr. Alexander Thom, surgeon of the 86th regiment, at the time of the explosion at Kurrachee, thus expresses himself: "I have witnessed disease of a severe and fatal kind, and cholera itself in an apparently grave form, but I never could have anticipated, even in India, its appearance in so appalling a shape as that in which it was recently developed in the 86th regiment: it burst forth almost literally like a thunder-clap, followed by a lethiferous blast, proving almost instantaneously fatal."

A. D. 1846, fearful mortality from famine and epidemic pestilence occurred in Gallicia: during the first half-year, 1234 deaths occurred, and for the like period in the subsequent year the mortality was 5188! During this time the weather was distressingly hot in Canada, North America, the thermometer frequently standing 96° and 98°; numbers were carried off daily by fever. Epidemic cholera, after raging

with very great violence for two years in Persia, towards the end of the summer of 1846, broke out at Tauris and Teheran, and during the autumn advanced to places nearer to the Russian frontiers. On the 16th of November, 1846, cases occurred at the village of Ialiany, and also in the same month at Leukoran; and it is worthy of remark, that these were the places first attacked in 1830. The disease also appeared at Bakrou, and advanced in December to Schêmakha and Derbent; and in the month of February, 1847, to the town of Konba. Its appearance at Ialiany and in the district of Talysch was marked with that malignity which for the most part characterizes the commencement of cholera. We observe at Ialiany a remarkable instance of the influence of the trade and locality tending to foster it, selecting for its victims those who had but recently recovered from the fever of the country: the cholera almost invariably carried off every one attacked, nine-tenths falling victims to the disease. In the localities of the trans-Caucasian provinces, the attacks became less violent, and without the towns the disease no longer presented a malignant type. Towards the end of February, it was supposed that the disease had ceased, but in the following month, March, it recommenced with redoubled violence, and in April spread destruction with fearful rapidity. Traversing the shores of the Caspian sea, it reached Tiflis in May. It also appeared in this month on the other side of the Caucasus, at Kizliar, whence, re-ascending the Terek, it penetrated to Mozdok, at the end of June to Piatigorsk and to Georgierk, and entered Staowpol in the first week of July.

From October, 1846, to June, 1847, there occurred in the Caucasus and trans-Caucasian provinces no less than 17,055 cases of cholera, of which 6318 died. Astrachan suffered greatly from cholera, great numbers of the inhabitants having been carried off, as was also the case in Moscow. From official accounts received from St. Petersburgh, it appeared the inhabitants of the western town Alexandrof were attacked with cholera, and also the district of Olgapol,

in Podolia. The latter is about thirty miles distant from the Austrian frontiers.

A. D. 1846 and 1847, an epizootic or murrain destroyed much cattle in Europe, principally oxen; dogs, horses, and sheep suffering comparatively less. Great numbers of horned cattle were destroyed in Wallachia. A kind of pleuro-pneumonia afflicted both men and beasts in various parts of Scotland, principally in East Lothian, as well as in Aberdeenshire, extending throughout the North; it also prevailed in Ayrshire to some extent.

In the month of January of the latter year, 1847, influenza prevailed on the coast of Portugal and in the south-east of Spain: it also appeared in Newfoundland and in New Zealand; and in the month of March, in Valparaiso; in April, on the coast of Syria: in July, August, and September, it broke out on the west coast of Africa, south of the equator; during which time (in August) it raged at Hong-Kong. In the month of December, Paris was assailed by this malady, which was also rife at Madrid; it was termed 'la grippe,' and seized more than half the population: five thousand persons were said to have been laid up by this wide-spreading disease at one time in Paris. About this period, the island of Java was visited by epidemic diseases. Virulent small-pox committed great havoc, and then typhus prevailed in Ireland; the mortality among the medical profession was great, it being calculated that one-fifteenth of the entire medical community died there during the year. There was great mortality from typhus at Prague, between the 16th of December, 1846, and the 16th of December, 1847; the deaths during that time amounting to 5192. During the latter year, 1847, cholera was rife in Moscow, Stockholm, St. Petersburgh, and Cronstadt; various parts of Europe were visited by influenza, the greater part of the inhabitants of Copenhagen having suffered therefrom: the disease also prevailed at Marseilles, attacking half the population of 80,000 persons; its character, however, was mild.

During the last fortnight of November, 1847, an epidemic

of rather a remarkable character broke out, and prevailed in the North of Scotland, commencing in Dundee, travelling over the entire coast as far as Kinnaird's Head, and extending westerly, involving Huntly, Keith, Elgin, and Inverness; it first affected the system by pain in the throat, followed by headache, sickness at stomach, and expectoration of a dark, bilious-looking substance. To such an extent did this malady prevail, that the University and King's College, then in session, were closed; half the students at Marischal College and the university were laid up; those at the grammar schools were afflicted in the same proportion. At Edinburgh and Montrose the malady prevailed to an alarming extent, the schools generally having been visited; 810 scholars belonging to the schools in the latter place suffered at one time. The weather, which had been damp and rainy, was considered to be the principal cause. Yellow fever prevailed at New Orleans, from the 5th of July to the 22nd of October; it carried off 2544 persons. Cholera this year prevailed at Trebizond, situated on the oriental shores of the Black Sea. An author of eminence states that the inhabitants of this city suffered cruelly: Constantinople was afflicted about the same time by dire pestilence, which was fatal to numbers. We have also an account of famine and pestilence in Silesia. The famine and distress at Rybensk and Plesg were appalling; in many parts of the latter place 4500 died more than in the preceding year, which was also very fatal; from 15 to 20 per cent. of the inhabitants were cut off by disease. In Rybensk great numbers died daily from famine, and the Committee of Relief stated that hundreds of orphan children were seen standing beside the corpses of their parents crying for bread.

During the last two years, epidemic pestilence was rife and fatal in various parts of the world. In the latter year, 1847, influenza raged all over England; and with the following observations, taken as the substance of the Registrar-General's Report, dated January 30, 1848, this History of Epidemic Pestilences will conclude:

The meteorological phenomena were particularly remarkable prior to the breaking out of the influenza. The population were inadequately supplied with potatoes, from scarcity caused by the disease which had existed the previous years, —a sort of blight. Scurvy became prevalent at the beginning of the year. In April, typhus became epidemic, and the mortality was increased. Diarrhea, dysentery, and cholera also prevailed. The wind blew, from the first week in October, s. s. w. and s. w. The weather was universally warm; a brilliant aurora was observed, and shook the magnets, October 24th. It appeared eight times during the quarter. On Tuesday, November 16th, there was a remarkable darkness; the wind changed to N.W., and amidst various changes still blew from the north over Greenwich at the rate of 160 and 250 miles a day. The mean temperature of the air suddenly fell from 11° above to 10° below the average. On Sunday, it was 54°; Friday, 32°; on Friday night, 27°. The earth was frozen; the wind was calm three days, and on Saturday evening a dense fog lay over the Thames and London for the space of five hours. No electricity stirred in the air during the week, —all was still, as if Nature held her breath at the sight of the destroyer come forth to sacrifice her children. On Monday, the sky became overcast, the air damp; the wind changed in the night to S. by E., and passed for four days over Greenwich at the rate of 200 and 300 miles a day. The temperature suddenly rose, and remained from 2° to 9° above the average throughout the week ending on the 27th of November. Influenza broke out: in the first week in December, 2454 persons died; the week following, 2416 persons, and in six weeks, 11,339. The epidemic in that time carried off 5000 over and above the mortality of the season. The country districts do not appear to have been affected to any extent,—a fact which shows how much purity of the air has to do with the outbreak of epidemic diseases.

Influenza, it has been observed, is often associated with other epidemics: it preceded and accompanied the plague or

'black death' in the fourteenth century; it preceded the great plague in London, A. D. 1665; it followed epidemic typhus A. D. 1803; preceded typhus A. D. 1837, and occurred in the midst of the typhoid epidemic in the year 1847. Influenza also preceded and followed epidemic cholera, 1831 to 1833. In short, it may be said that influenza has from time immemorial pretty generally preceded and accompanied epidemic pestilence in every quarter of the globe, as is noted by the Registrar-General to have been the case in England, A. D. 1728, 1733, 1743, 1758, 1762; five years after, A. D. 1767, 1775, 1782; again, A. D. 1788, A. D. 1803, 1831, 1832, and following year, 1833, as also A. D. 1846 and 1847.

## CHAPTER IX.

### NATURE AND CAUSES OF EPIDEMIC PESTILENCES.

We have abundant reason for the belief that nothing is fortuitous; but, on the contrary, that everything in this world of ours is the effect of design; all things around us bearing evident stamp of the skill and beneficence of its Omnipotent Author.

> "Thus at thy potent nod, EFFECT and CAUSE
> Walk hand in hand accordant to thy Laws;
> Rise at Volition's call; in groups combined,
> Amuse, delight, instruct, and serve mankind."

The histories of epidemic pestilences or diseases—because of the vast numbers of persons on whom they seize at one and the same time, and also because of their intensity and destructiveness,—are not only of greater importance to mankind than are the generality of maladies, but they are also of deep interest in as far as concerns questions of pathology. Epidemics are also exceedingly interesting in a physical and moral point of view,—their histories, and the investigation of their causes, leading to an insight into the organism of the world, in which the sum of organic life is subjected to the greater powers of nature; for it would appear, as far as human knowledge extends, that all organized bodies, from a variety of causes as dissimilar as they are complicated and numerous, are more or less susceptible of change and decay. Thus we see disease assail and carry off mankind at all times

and in all regions: murrain is destructive of dumb animals, while blight spares not the vegetable kingdom, from the sturdiest oak to the most diminutive herbage; in fine, all nature is subjected, in various degrees, to the devastating tendency of the elements in their general evolutions in the mundane economy, based on immutable laws, arising from original and supreme provision:

> " Wonder-working hand,
> ———— in majestic silence sways at will
> The mighty movements of unbounded nature."

Considering that epidemic pestilences or diseases have been from time immemorial more destructive of mankind than all other maladies, or than even famine and the sword combined, it is somewhat surprising that a comprehensive and efficient investigation of such an important class of diseases, founded on enlarged and scientific views, has never yet been made,—in fact, has scarcely ever been attempted. Such apathy to minute enquiry into the nature and causes of epidemics, and the indifference evinced to every-day occurrences, so much attended to by the ancients, is culpable in the extreme; for nothing can be more injurious to the cause of truth, or tend more to retard scientific pursuits, than such disregard of the nature of things, for daily experience alone is sufficient to show that every effect in the physical world has an antecedent cause, which is at all times open to experiment and investigation, and which, however obscure at first, may often be explained and understood by means of close observation and steady perseverance in our researches.

Epidemics are acute diseases which run through their stages with rapidity, consequently making it absolutely necessary that we should be prepared not only to relieve those attacked with promptitude, but, if possible, to prevent others being affected, which can only be done by attending to the results of an unprejudiced investigation concerning all that is known of the laws by which they are governed

—the causes whence they arise, and their mode of extension.

To the ancients, who were accurate observers of nature and of nature's laws, we are indebted for much valuable information as regards the universal distempers termed Epidemic Pestilences,* and although amongst their writings we may not at first sight recognize many diseases according to our modern nomenclature, nevertheless by careful perusal and investigation we shall be enabled to identify some of them sufficiently to show the wisdom and the superiority of the arrangements of our predecessors, when compared with the confusion and worse than uselessness of many of the nosological distinctions and classifications made since the days of Hippocrates, tending, as they do, not only to divert us from the true character of disease, but also to mislead us in our practical views.

The records of antiquity show that all kinds of pestilences, including febrile diseases, have been known under various appellations from the earliest ages of the world. From the beginning of the Jewish nation,—from the first settlement of the Israelites in unhealthy Egypt to the present day, we find noticed a series of plagues or pestilences overspreading the various parts of the habitable globe, and destroying millions of the human species; and if we refer to the histories of ancient nations, as well as to the modern annals of medicine, we shall find therein recorded the same character of diseases, arising from like causes, occurring during similar seasons, happening in similar localities, and marked pretty generally by the same circumstances. The assumption, therefore, of the existence of any new disease, as propounded by some modern authorities, would represent the Divine Power as dispensing with the laws of nature,—in short, would imply nothing less than the suspension or

* The term Plague or Pestilence, as used here, is meant in its general sense to express all sorts of distempers; the Hebrew דֶּבֶר Deber, which properly signifies plague, being used in the Hebrew tongue, as in most others, to express every variety of epidemic disease.

alteration of the operation of those laws which the Almighty in his wisdom imposed on nature at the creation;

> " By whose almighty word
> They all from nothing came;
> And all shall last
> From changes free;
> His firm decree
> Stands ever fast;"—

—laws which the pious Psalmist of Israel in his contemplations on the divine goodness and greatness of Jehovah, as displayed in the kingdom of Nature, describes as the admirable chain of natural causes and effects formed and preserved by him in this lower world:—whatsoever the Lord pleaseth, He doeth in heaven and in the earth, in the sea, and in all deep places. He causeth the vapours to ascend from the ends of the earth, He maketh the lightnings for the rains, He bringeth the wind out of his treasure, He smote the first-born of Egypt from man to beast, He covereth the heaven with clouds, He prepareth the rain for the earth, &c.—The supposition of the existence of any new disease in our day is consequently untenable, but to be accounted for because of our inability to trace diseases under the same names and precise characteristic symptoms described by our predecessors in the study of nature; in fact, the comparatively modern origin of some diseases may be said to rest on the absence or deficiency of distinct and express notice of them in the writings of the ancients, arising in some measure from false or imperfect translations from the original, and from the practice of the ancients in referring different malignant maladies to the same pestilential constitution; for be it remembered that they considered all febrile diseases bore such affinity to each other, that they classed all pestilential epidemic distempers under one general head or term, viz., PESTILENCE, PLAGUE, or FEVER; under the head of consumption, they noted all chronic diseases; and boils, scabs, pustules, blotches, carbuncles, &c., were included under that of skin diseases.

Further, with reference to modern nomenclature, we now hear pestilence called plague in Egypt, yellow fever in America and elsewhere, bilious remittent and intermittent, and also yellow fever in the West Indies, and typhus or nervous fever in Great Britain: we read also of the same epidemics which the ancients called pimples, pustules, apostemes, and gangrenous sores, now being called distinct and confluent small-pox, carbuncles, &c.: and I repeat that the perusal of ancient writings, both sacred and profane, not only affords us ample evidence of the origin, nature, causes, progress, and violence of such maladies in the primitive ages of the world, but they also demonstrate the identity of ancient pestilence and modern plague,—the resemblance of ancient and modern fevers,—the similitude of burning boils and modern carbuncle,—the like appearance of pustules and small-pox,—all tending to prove that no *material* alteration in the nature of any diseases, or of their causes, has taken place since the first population of the world; AND, ABOVE ALL, THAT THEY DISPLAY THE PERPETUAL UNIFORMITY OF PROVIDENCE IN THE ENTIRE OPERATIONS OF NATURE'S WORKS.

## CHAPTER X.

### OF THE CAUSES OF EPIDEMIC PESTILENCES.

"Docebo causas, quas diligentiâ experientiâque comperi."

EXPERIENCE has taught us that the phenomena of epidemic pestilences or diseases are various and dissimilar, observing no regular course or succession, but commencing and ceasing at periods influenced by certain changes of the seasons, and modified by various circumstances, especially such as locality and habit of body.

The chronicles of all nations are replete with notices respecting the remarkable commotions of nature, which have proved from time to time so inimical both to the animal and the vegetable kingdoms; and on carefully reviewing the facts detailed in the histories of epidemic pestilences or diseases, it will be readily perceived that, during certain periods or seasons, ELEMENTAL DISTURBANCE has enveloped, as it were, the entire globe, carrying death and misery into every quarter. I am, therefore, of opinion that the grand phenomena of nature, exhibited in the commotions of our physical world, supply us with abundant materials for the explication of all epidemic pestilences or diseases; that the latter are consequently assignable to natural causes, without searching for or hunting after mysterious agencies, to the neglect of those which Nature is constantly presenting to our view.

I am fully aware that ascertaining the causes of maladies of any description is a matter attended with much difficulty, not only from the variety and impalpable nature of the

causes themselves, but also from the peculiar functions and various idiosyncrasies of the living system on which such causes act; numerous conditions being found capable of modifying the effects of a common cause of disease, viz. the season of the year, peculiar state of the atmosphere, especially as regards heat and humidity, circumstances of locality, the different temperaments of individuals exposed to their agency, the influence of previous ailments,—all these concurring more or less in the production of diversified forms of disease.

By way of illustration and with reference to atmospheric influence—the *grand exciting* cause of disease,—every practitioner is familiar with certain conditions which are favourable to the production of certain disorders, such as common catarrh or cold, and its more aggravated form termed influenza,—hooping-cough, bowel affections, gastric fevers, &c. The effects of external temperature first produce on the functions of the skin (which connects us with the exterior world) an augmentation or diminution of the natural discharges, by suddenly changing or disturbing the balance of the circulating fluids between the external and internal parts or surfaces, irrespective of the perspiratory process, commonly termed sweat, there being innumerable chemical agents more poisonous and of greater importance as to their elimination from the system in the shape of insensible perspiration. I repeat, that the effects of external temperature, by causing a repercussion of the cutaneous exhalations (sensible and insensible), so damage the *vitality* of the system, as to be the *exciting* cause of disease; and, although from our imperfect knowledge, it scarcely admits of investigation, setting aside chemical research, so that we cannot explain or define the precise peculiarity of each and every condition of the atmosphere favourable to the production of each variety of disorder, the effects of such external temperature are, however, not the less certain and obvious to our senses. The agencies are all natural, comprised in the excess of state or change acting on individuals whose susceptibility varies

greatly from moral as well as from physical *predisposing* causes; but our inability to define their peculiar conditions or auræ, as noticed by Hippocrates, Sydenham, Bacon, and others, no more militates against our reasoning upon their visible effects, than a knowledge of the gravitating principle or power is essential to the proof of gravity.

But to the subject of the causes,—the exciting and the predisposing of disease; it should be premised that when attributing epidemic pestilences or diseases to natural causes, it must not be supposed or inferred that any one of such causes, as heat, cold, moisture, drought, &c., will alone be sufficient to induce disease: to effect that, there must be a combination of these causes in continuance and succession, in occasion and variation, as also in circumstance and virulence.

It has always appeared to me that a proper and sufficient distinction is never, or rather, has never, been made, between the predisposing and the exciting causes of disease—an error which leads to much confusion and to contradictory conclusions on all sides. *Par exemple*, in a Report on the epidemic pestilence which raged some years ago in Ireland, it was unanimously determined, (so says the Report,) "that the predisposing causes were, rapid atmospherical vicissitude, low marsh and other effluvia." Here we have the exciting cause, 'atmospheric vicissitude,' jumbled together with a predisposing cause, 'marsh effluvia;' while on the other hand, in recent Reports on cholera from various authorities, we have marsh and other effluvia assigned as the exciting causes, which, on reflection, will strike any one as being obviously fallacious, inasmuch as if marsh and other effluvia are to be considered as exciting causes, instead of predisposing to disease, we should scarcely ever find those places free from pestilence where these matters are supposed to be engendered, whereas we see various localities in South America,—in British Guiana, for instance, and even in Ethiopia,—which have been condemned as the hot-bed and nursery of pestilence, where putrefaction is supposed to

concoct and concentrate its most lethal poisons,—still enjoy their seasons of salubrity: it is, I repeat, from the absence of such distinctions as to the exciting and the predisposing causes, coupled with the non-consideration of the great variety of circumstances, both past and present, local and general, individual and common, which are influential in the production of disease, that so much uncertainty and disputation as to the causes of epidemic pestilences have arisen. Such distinctions will appear to be more important and necessary for the prevention and mitigation of epidemic pestilence or disease, when properly considered, inasmuch as the predisposing causes, which are in a great degree under our control, are always in existence or operation to a greater or less extent, while the exciting causes may be said to be of only occasional occurrence.

As before observed, the causes of diseases are described as the predisposing and the exciting. The former, the predisposing causes, I understand to be,—the want of light; impure air (especially from defective ventilation), in which are included malaria and all other noxious vapours, from whatever source arising; a scanty and impoverishing diet; and, though last, not least, habit of body, induced by the irregular and artificial life of man in a state of civilization, which, by enervating the system, induces the predisposition to disease by rendering the human frame more susceptible to external impressions; the grand excitants of disease, such as elemental disturbance, consisting of variations of temperature and the state of the surrounding medium, as to hygrometric influence, electrical tension, &c.

Naturalists in all ages have concurred in the opinion that sudden atmospheric mutations act injuriously on the subjects of the vegetable kingdom as well as on those of the animal, and it will, I presume, be admitted that the existence of the vegetable kingdom is necessary for the support of the animal,—the physiology of both reflecting much light on each other. We see the vegetable kingdom assailed by disease termed *blight*,—'pestiferous blight,' as it has been

called by some; these blights are but pestilences affecting the vegetable kingdom, and have ever been attributed to natural causes, elemental disturbance, &c.

At the periods which have been remarkable for the occurrence of blights, animals—such as horned cattle—have been known to suffer sooner or later; and man also, as I shall in the course of these pages fully show. Reasoning analogically, therefore, may we not conclude that that state or condition of the elements which induces blights,—pestilences in the vegetable,—will also act injuriously on the animal kingdom, more especially on the human race, men being, from habit of body, &c., more prone to or susceptible of disease?

Referring to the annals of history, which so abundantly show that the ancients considered all universal distempers as originating in the disturbed states of the seasons, I will cite a few instances (commencing with sacred history) explanatory of the causes of universal maladies, termed epidemic pestilences or diseases.

In the books of the Old and New Testaments we find beautifully described the great causes of pestilence inducing their effects in regular succession and with absolute certainty. The books of God, in tracing the hand of Omnipotence through the medium of secondary causes, producing effects punitive of guilty mortals, attribute all diseases to the immediate interposition of Divine Providence:

"Pestis et ira Deûm Stygiis sese extulit undis."

And why?—Because God is the first great cause, the original creator of all things, the preserver and governor of all things in heaven and on the earth, and likewise the sole disposer of the elements.

Seeing, therefore, that our Creator, while possessing the sovereignty of the universe, may employ what agents he pleases for the execution of his purposes, we, in investigating the causes of all distempers, without in the slightest degree impugning their divine origin, can perceive that the

Almighty Disposer of events effected his purposes by the employment of natural means;—further, in expounding the causes of disease, as existing in natural and common things, and modification of beings and things of this natural world, we can do equal homage to the Almighty's wisdom and goodness, omnipotence, justice, mercy, judgment, and providence, as we can in displaying them as immediately inflicted on guilty man. Yea, more glorious do the attributes of the Most High appear in the sublime mysteries of nature!

To particularize: when the governors of the five cities, Gath, Ekron, Askelon, Gaza, and Ashdod, met for the purpose of contriving to rid themselves of the ark which the Philistines had captured from the Hebrews, it would appear that they were cognizant of the natural means adopted by the Almighty to effect his purposes, although they, in their impiety, doubted the divine origin of their affliction by pestilence. Overlooking the omnipotence and all-wise direction of their Creator, they exhorted the people to bear patiently that which had befallen them, and to believe in no other causes of the pestilence which was effecting their destruction *than those springing from the operations of nature, which at certain revolutions of time produce such mutations in the bodies of men, in the earth, in plants, and in all things grown out of the earth, as to excite disease.*

With reference to elemental disturbance, the prophet Amos (ch. iv. vss. 8 and 9) first describes the occurrence of a great drought, then the generation of insects—the palmer-worm and the canker-worm, which destroyed all foliage and herbage: vegetables, orchards, and olive-yards, all fell a sacrifice, and induced a grievous famine, succeeded by a dire pestilence.

Habakkuk, in his prayer, (chap. iii.) makes allusion to a great pestilence preceded by earthquakes and great commotions of the elements; the sun and moon standing still in their habitations, the mountains trembling, and the waters

overflowing, causing famine and pestilence, to the destruction of 14,000 persons.

Again, in the 28th chapter of Deuteronomy, which contains the promised cursings and blessings of the Almighty on his people, we have a proverbial figure of speech, *expressively* illustrative of the natural means employed by our Creator in effecting his purposes: "And thy heaven shall be brass, and the earth iron;" the one denoting a drought, during which the heavens will yield no rain, inferring also extreme heat; the other, the unproductiveness of the earth, yielding no fruit,—the effects of such drought being to induce famine, and ultimately disease. The experience of our own times exemplifies in the fullest manner the concurrence, from *physical causes*, of famine with pestilence—facts which the prophets of old always connected, viz., the sword, famine, and pestilence, as being three evils which generally accompanied or followed each other; and we cannot conceive a doubt as to the association not being accidental, especially of the two latter, but arising from their dependence upon similar atmospheric phenomena.

Jeremiah (chap. iv., vss. 11 and 13), in describing the approach of the armies of Babylon, compares them to the drying, parching, scorching, and blasting winds of Egypt, Africa, Arabia, and Asia, which wither and destroy the fruit of the earth, melting and oppressing all living creatures; and he likens them to clouds of dust and whirlwinds traversing those pestiferous countries of the East, where the heat and drought, the dews and damps, heavy rains, the cold north winds of winter and spring, succeeded by the suffocating heats of summer and autumn, generate pestilence and cutaneous diseases.

In turning to the history of Egypt,—to this day a hot-bed of pestilence,—we have graphically pictured a series of events occurring and ending in the production of pestilential disease. The waters of the rivers were first turned red, the fish died, and stank therein, causing putrefaction of their bodies, while the waters became unfit for use, either by men

or beasts: secondly, swarms of frogs infected the land, penetrating into the very houses; these were succeeded by a host of insects, lice, flies, &c.: thirdly, the beasts of the field suffered from murrain; and finally, man suffered from boils, blains, &c. If we look into the topography of Egypt, we shall find abundant causes to account for its great and continued insalubrity;—the whole country lies near the tropic of Cancer; it is bounded towards the east by the Red Sea, on the west by the deserts of Libya, on the north by the Mediterranean, and on the south by Abyssinia or Upper Ethiopia. All the lower country is encompassed by the arms of the Nile, and is inundated annually by that father of rivers, when it overflows: it rises twenty-four feet in perpendicular height at the medium increase of four inches daily, and it continues from the end of June to the beginning of September, when it begins gradually to subside. The inhabitants sow their corn and vegetables in October and November, immediately after the retiring of the waters; their harvest-time is in March and April. Volney observes that the surface of the land successively assumes the appearance of an ocean of fresh water, of a miry morass, of a green level plain, and of a parched desert of sand and dust, and all in such rapid succession that it can never be otherwise than insalubrious.

To recapitulate more fully. In that calamitous period in the days of Moses, as shown in the history of Egypt already alluded to, the season was distinguished by an extraordinary phenomenon, the waters being turned to the colour of blood by the addition of some remarkable materials or insects which killed all their fish, and caused the waters to stink in all the low lands of Egypt, so that they could not drink the waters of the river or of their ponds for seven days; this peculiar condition of the waters, and the heat of the atmosphere, engendered swarms of frogs, which, it is stated, came up into their houses, into their very bed-rooms, entered into their ovens, and even into their dough. Some great commotion of the elements, or a great and sudden change of the weather, killed the frogs in their houses, villages, and fields.

When the people gathered their carcases into heaps, so great were their numbers that the whole land stank with their putrefying bodies; lice began afterwards to infect the inhabitants, as well as the bodies of domestic animals; swarms of noisome insects, such as flies, &c., succeeded the general putrefaction of the dead frogs, and as the excesses of the seasons continued and increased, a mortal pestilence among domestic animals, cattle and horses, camels, oxen and sheep, ensued. This was the presage to an awful pestilence among men, according to the common course of nature; indeed the Egyptians had not recovered the loss of their cattle, when fiery pustules, apostemes, and putrid ulcers infested their own bodies. After this succession of evils, a dreadful storm of hail arose and destroyed cattle, herbs, and fruit; in this tremendous tempest, we read that the lightning, mingled with hail, ran along the ground, and was so very dismal and grievous in its appearance and effects, that Pharaoh and all his people trembled as if the pillars of nature had been shaken to their very foundation, and the world was about to come to an end: to add to these dire calamities, hosts of locusts were brought by the east wind over all the land of Egypt; they rested on all the coasts and borders of the land, covering the face of the earth, so that the ground was blackened by them; while they devoured the residue of the herbs which the hailstorm had spared, not one green thing remaining in the land of Egypt.

Soon after this, a strong west wind began to blow, which cast all the locusts into the Red Sea, where they were drowned; their bodies being subsequently washed on shore, stank intolerably, and became a great auxiliary cause of pestilence amongst the inhabitants. Meantime three days of astonishing darkness spread over all the land, and the inhabitants could not see each other, neither did they rise from their seats; pestilence meanwhile was rife in the land. This terrible distemper first seized all the young and robust, all the first-born of man and beast—from the first-born of the king to that of the slave,—yea, there was not a house in

which there were not some dead; so tremendous was the stroke that the sacred historian calls it the immediate judgment of God to punish their wickedness. And behold it happened in the dead of the night, says the devout narrator, that the Lord smote all the first-born of Egypt, from the first-born of Pharaoh that sat on the throne to the first-born of the maid-servant that stands behind the mill, and even the firstlings of the beasts;—in short, so dreadful was the calamity and destruction that the Egyptians cried out, "We be all dead men!"

Looking to all the foregoing circumstances detailed, can we hesitate to attribute the terrible malady which prevailed in Egypt to any but the pestilential constitution of the season?—can we suppose the operation of any other than natural causes, such as long drought, excessive heats, hot burning winds, clouds of suffocating dust and sand; heavy rains succeeding the drought; storms of hail mingled with lightning; famine, the consequence of the destruction produced by the locusts and devouring insects; the noxious emanations from dead frogs which had been destroyed by the dismal commotions of the elements; and the insufferable stench arising from the carcases of the quantity of dead animals? Can we imagine, I ask, any other causes to have been in existence to produce such awful pestilence than those of the sudden great changes of the weather, inundations of the rivers, and the universal corruption of dead animal and vegetable matter throughout the dominion of Egypt? I reiterate the question,—have we not abundance of material to account for this terrible infliction on the people of Egypt?

About this period of dire suffering of the Egyptians from pestilence, the first dreadful epoch of Spanish epidemiology is recorded as having commenced; the date, however, has been variously given. By some writers it is fixed about the time of David, 1017 B. C., when 70,000 persons were destroyed in three days by pestilence; by other writers it is stated to have commenced amongst the Spanish 1100 B. C. There were *twenty-five* years of drought in Spain without

interruption; springs were dried up; rivers became fordable, their waters being almost stagnant; there was neither pasture for beasts, nor fruit for man; so great was the barrenness of the land, that there was scarcely anything green to be found, except some few olive-trees on the banks of the Ebro and the Guadalquivir: such, says the historian, was the melancholy state of ancient Spain, "full of dreadful mortalities, plagues, and miseries of every description, which, with emigration to other lands, nearly depopulated our country."

The Greek poet, Homer, describes the causes of the pestilence which attacked the armies at the siege of Troy as being attributable to the extreme heat of the weather and the unfriendly seasons. He styles the sun Apollo:

> "On mules and dogs th' infection first began,
> And last the vengéful arrows fix'd on man;
> But let some prophet or some sacred sage
> Explore the cause of Great Apollo's rage."

Thucydides, another celebrated Greek historian, describes a similar condition of the atmosphere with physical irregularities, as causing an awful pestilence at Athens:

*τεκμήριον δὲ τῶν μὲν τοιούτων ὀρνίθων ἐπίλειψις σαφὴς ἐγένετο, καὶ οὐχ ἑωρῶντο οὔτε ἄλλως οὔτε περὶ τοιοῦτον οὐδέν· οἱ δὲ κύνες μᾶλλον αἴσθησιν παρείχον τοῦ ἀποβαίνοντος διὰ τὸ ξυνδιαιτᾶσθαι.*

Lucretius, in imitating Thucydides, thus expresses himself:

> "Nec tamen omnino temere illis solibus ulla
> Comparebat avis, nec noctibus secla ferarum
> Exibant sylvis; languebant pleraque morbo
> Et moriebantur; cum primis fida canum vis
> Strata viis animam ponebat in omnibus ægram;
> Extorquebat enim vitam vis morbida membris."

> "No longer birds at noon, nor beasts at night,
> Their native woods deserted; with the pest
> Remote they languish'd and full frequent died;
> But chief the dog his generous strength resign'd,
> Tainting the highways, while the ruthless bane
> Through every limb his sickening spirit drove."

The poet Ovid, in the seventh book of his Metamorphoses, in describing the terrible pestilence which occurred in the island of Egina (see 'History of Pestilences'), represents the pestilence as arising from the following causes:—He exhibits the earth covered with dense clouds, darkness, and suffocating heat; the deadly south winds blowing for four months, the very vapours of disease; the lakes and fountains infected, the air poisoned, and the entire land infested with venomous serpents, as happened to the people of old. The plague or pestilence first attacked horses, oxen, mules, sheep, dogs, cats, and even birds, and then it affected mankind; death was sudden, and the streets were choked with the carcases of men and beasts, and universal nature seemed to be suffering from premature caducity.

In order to show the identity of this pestilence with the plague of Egypt, the bilious remittent or yellow pestilence of the West Indies and the United States, the disease termed Andalusian fever which has from the earliest ages made such havoc in Spain and the adjoining country, and also with the pestilence which has more than once visited both England and Ireland in days of yore, we have collected the symptoms of that disease from Ovid's poetical enumeration of the morbid phenomena, which were,—great heat in the bowels, flushings of the face, difficulty of breathing, bilious vomiting, pains in the head, with obstinate constipation, great prostration of strength, unquenchable thirst, delirium, often attended with coma, great anguish, dry black tongue, cough, &c., which proceeded to a fatal termination in the course of two, three, or four days: the following is a translation or imitation of the original.

" A dreadful plague from angry Juno came,
To scourge the land that bore her rival's name,
Before her fatal anger was reveal'd,
And teeming malice lay as yet conceal'd.
At first we only felt th' oppressive weight
Of gloomy clouds, then teeming with our fate,
And labouring to discharge the sultry heat:

But ere four moons alternate changes knew,
With deadly blasts the fatal south wind blew,
Infected all the air, and poison'd as it flew.
Our mountains, too, a dire infection yield,
For crowds of vipers creep along the field,
And with polluted gore and baneful teems
Taint all the lakes and venom all the streams.
The young disease with milder rage began,
Seized on birds and beasts, approaching man;
The labouring oxen fall before the plough —
The ploughmen wonder, stare, can't imagine how;
The tabid sheep, with sickly bleatings pine,
Their wool decreasing as their strength decline;
The warlike steeds, by inward foes compell'd,
Neglect their honours and desert the field;
Enerved and languid, seek a base retreat,
And at the mangers groan, but wish'd a nobler fate.
The stags forget their speed, the boars their rage,
Nor can the bears the stronger herds engage:
A common faintness now invades them all,
In woods and fields promiscuously they fall.
The air exhales the stench, and, strange to say,
The ravenous birds and beasts avoid the prey;
The putrid bodies rot upon the ground,
And spread the dire contagion all around.
Meanwhile the plague acquires a larger size,
It feasts on men, and scorns a meaner prize.
Intestine heats begin the civil war,
And flushings first the latent flame declare,
And fiery breath, which seem'd like burning air.
Their black dry tongues are swell'd and scarcely move,
And short thick sighs from panting lungs evolve:
They gasp for air, with vainest hopes to sate
Their raging flames, but that augments their heat.
No bed, no covering, can the sicken'd bear—
All on the ground exposed to open air,
They lie, and hope to find a pleasing coolness there.
The burning earth, with hot oppression curst,
Returns the heat which they imparted first.
All remedies they try, all med'cines use,
Which nature could supply or art produce:
Invincible, it mocks the vain design,
And art and nature foil'd—declare the cause divine."

Hippocrates, the great founder and parent of rational nedicine, in his book on Epidemic Distempers, accurately

delineates the vicissitudes of the weather and the different seasons of the year, attributing to them the causes of all diseases. He thus describes a state of atmosphere producing a most extraordinarily dismal pestilence and mortality: A season marked by abundant showers, a south wind following drought; a hot and sultry autumn, with abundant rain; a humid, open, light, and warm winter, extremes of cold after the conversion of the sun under the equinox, with winds blowing, with snow and sudden great change of weather.

"Annus austrinus, imbribus abundans atque in totum ventis tranquillus fuit. Quum autem paulo superioribus anni temporibus justo majores siccitates viguissent, sub Arcturum sperantibus austris multum fuit. Autumnus obscurus, nebulosus, cum aquarum abundantiâ, hyems austrina humida et levis. Longo vero post solis conversionem intervallo juxta Æquinoctium, extremæ hyemes adfuerunt; jamque sub Æquinoctium ipsum Aquilonares venti cum nivibus non ita diu speravere. Ver rursus austrinum a flatibus quietum, aquæ multæ et continentes ad canem usque. Æstas verum calida, æstus præfocantes magna. Anniversarii venti (Etesias vocant) pauci disjunctim speravere. Sub Arcturum rursus spirantibus aquilonibus aquæ multæ."—(On Epidemics, bk. iii. sect. 3.)

Again, in section 8 and 18 we have: "In aëre considerandum quanta insit caliditas, frigiditas, crassitudo, tenuitas, siccitas, humiditas an plenior an vero minor et copiosior. In quibus quænam mutationes et ex quibus fiunt, quomodoque se habeant, animadvertere oportet,"—plainly signifying that a pestilential constitution of the seasons consists of atmospheric vicissitudes, heat and cold, dryness and moisture out of season and in excess.

Galen, the great commentator on the works of his master, assigns two causes to pestilence; the one, a great irregularity of the seasons, and consequently a pestilential state of the air; the other, a vitiated condition of the human body from corrupt and defective food, impure air, &c., by which means it is rendered liable to disease: here we have the exciting

and the predisposing causes of disease clearly pointed out.

Further, in illustration of continued drought inducing famine with its other evils, disease and mortality, we may quote Tasso's beautiful description of the sufferings of the Christian army under the walls of Jerusalem:

" The leaves grew wan, upon the wither'd sprays
The grass and growing herb all parched were;
Earth cleft in rifts, in floods each stream decay,
And barren clouds with lightning bright appear.
Still was the air, the rack nor came nor went,
But o'er the land, with lukewarm breathing flies
The southern wind, from sun-burnt Afric sent,
Which thick and warm, his interrupted blast,
Upon their bosoms, throats, and faces cast.

Nor yet more comfort brought the gloomy night;
In her thick shades was burning heat up roll'd,
Her sable mantle was embroider'd bright,
With blazing stars and gliding fires for gold.
Nor to refresh (sad earth's) thy thirsty sprite
The niggard Moon let fall her May-dews cold,
And dried up the vital moisture was
In trees, in plants, in herbs, in flowers, in grass.

And little Silve, that his store bestows
Of purest crystal on the Christian hands,
The pebbles naked in his channel shows,
And scanty glides above the scorched sands.
* * * *
The sturdy bodies of the warriors strong,
Whom neither marching far, nor tedious way,
Nor weighty arms which on their shoulders hung,
Could weary make, nor death itself dismay,
Now weak and feeble cast their limbs along,
Unwieldy burthens on the burning clay;
And in each vein a smouldering fire there dwelt,
Which dried their flesh, and solid bones did melt.

Languish'd the steed, late fierce, and proffer'd grass
His fodder erst despised and from him kest;
Each step he stumbled, and which lofty was
And high advanced before now fell his crest;
His conquest gotten, all forgotten pass,
Nor with desire of glory swell'd his breast;
The spoils won from his foe, his late rewards,
He now neglects, despises, nought regards.

Languish'd the faithful dog, and wonted care
Of his dear lord and cabin both forgot;
Panting he laid, and gather'd fresher air
To cool the burning in his entrails hot;
But breathing (which wise nature did prepare
To 'suage the stomach's heat) now booted not,
For little ease, (alas!) small help they win,
That breathe forth air, and scalding fire suck in."

The learned prelate Eusebius gives a very philosophical description of the impure state of the atmosphere during a great pestilence which ravaged the Roman empire. He writes thus: "The air was so noxious, every where deranged with corrupt vapours, fumes from the earth so putrid, winds from the sea, exhalations from marshes and rivers so injurious, that a certain poisonous liquor, as it were from putrid carcases, was brought by the elements, and covered the subjacent seats or benches, walls, and sides of houses, and the dew appeared like the sanies of dead bodies." (See edit. Paris. 1628.)

Tacitus, in his description of Rome, notes the occurrence, every third or fourth year, of what they termed "tempus grave aut annus pestilens," and he gives the following tetrastichon —

"Rome voracious of men subdues the lofty necks of heroes;
Rome full of fevers is frightful with the seeds of death;
Roman fevers are faithful by their lasting course,
When they once invade, seldom quit the living man."

If the site of Rome with its other concomitants be considered, we shall readily understand why pestilences were there so rife. It is situated in a level country on the low banks of the Tiber, surrounded by the extensive Ostiensian and Pontine marshes, exposed to the powerful rays of the sun, and subject to inundations and other commotions of the elements; further the inhabitants having been constantly engaged in war, did not cultivate their lands sufficiently to produce food for half the population, nor had they any established commercial intercourse with other countries, from which they could be supplied in times of scarcity.

From their perpetual inroads agriculture was also interrupted among all the adjoining nations, and the far-famed Romans were often reduced to the necessity of feeding upon grass, leaves, and unwholesome roots, or of consuming the provender stored for their cattle, till men and beasts, and, it is said, birds and fish, perished together, so pestilential were the seasons; "vulgato per omne genus animalium morbo."

I might go on multiplying authorities *ad infinitum* to show that previously to the middle of the seventeenth century those ages were full of physical and political miseries, sufficient to account for the frequent outbreak of fatal maladies; and we shall also find that subsequently to that period all those countries that have adopted judicious regulations in the construction of their dwellings, in widening their streets, improving the drainage, and securing an adequate supply of the three grand essentials to vitality,—light, air, and water, have proportionately experienced a corresponding immunity from pestilence, a notable exemplification of which we have in this our own country, although we are far, very far, in this the nineteenth century, from the improved condition that our wealth and the repeated warnings of disease which have been vouchsafed us, especially since the year 1832,—now nearly twenty years,—should have given rise to.

It was not, however, until after the great fire in 1666, at the rebuilding of London, as it were, that any measures were taken to secure the public health. In the year 1665, during the time of the great and terrible plague, our streets were narrow, and the houses, which were built of wood, closed inwards towards each other, one story projecting considerably above the other, till they seemed almost to touch each other at the top, and looking upwards from the street towards the sky was very like looking up from the bottom of a well. There were scarcely any sewers; the streets were damp and wet, and nearly everything in the shape of offal was thrown into them, while certain corporate bodies, the ecclesiastical authorities even, contended stoutly for the

right of sending their swine into the streets to feed upon such garbage as they found plentifully therein. It would also appear that the general habits of the citizens in no way counteracted the bad effects of their faulty architecture by domestic cleanliness.

The celebrated Erasmus asserts that the interior of the dwellings in London was disgusting to the last degree. He plainly ascribed 'the sweating sickness,' which was a species of plague, to the incommodious form and bad position of the houses, the filthiness of the streets, and the sluttishness within doors. In a letter to a physician of Cardinal Wolsey's, in which he gives an account of the domestic habits of our countrymen in those days, he says, "There is a degree of uncleanliness, and even of filth, pourtrayed, of which we can have no conception in our times." He continues: "The floors are commonly of clay, strewed with rushes, which were occasionally removed, but underneath lies unmolested an ancient collection of beer, grease, fragments of fish, spittle, the excrements of dogs, cats, and everything that was nasty." Hentzer observes, that even the floor of the presence-chamber of the Queen Elizabeth, in Greenwich Palace, "was covered with hay after the English fashion;" and Hume remarks, as a proof of the meanness of living in those days, "that the comptroller of the household of Edward the Sixth paid only 30*s*. a year for his house in Channel Row, which like the generality of the streets of London was unpaved and undrained, and contained an accumulation of the offal and such filth as was habitually thrown into them."

Sydenham, who writes of the changes produced in the amount of disease according to locality, the constitutions of the seasons, &c., notices that London in his day was ill-built, ill-drained, ill-supplied with water, and the neighbouring country to the very suburbs so badly cleared, as to subject the inhabitants to a return of agues regularly in spring and autumn; and in the journal of De Foe we have assigned as one of the many causes of the pestilence that

occurred in this country in 1665, the crowded state of the city and suburbs, which were prodigiously full in consequence of the disbanding of the armies after the restoration of the royal family and of the monarchy. Our city, says De Foe, was computed to have had in it 100,000 inhabitants *more* than it ever entertained before; some computed the number as being twice as many, so that pestilence became in one year (1665) more terribly destructive from the immense numbers crowded together, aided by peculiar elemental disturbances, which had been rife for several years previously; pestilence indeed may be said to have existed in London continuously from the year 1661 unto 1666.

In the year 1665 the terrible plague became aggravated in the month of July, from the sultriness of the atmosphere, cold nocturnal dews or damp fogs, frequent cold showers and cold winds alternating with the warmth and dryness of the air; in short, every extreme vicissitude seemed to exist in that dismal period of disease and death, producing agues, bilious disorders, bowel complaints, &c. In the next month the great general pestilence appeared to swallow up as it were all previous diseases in one common destruction. Indeed, from the month of August all other diseases were absorbed in the pestilence: all distempers, commencing in their usual form, were uniformly resolved into the deadly plague; and in the month of September, says the great historian, "Death rode triumphant among the devoted inhabitants of London; having borrowed the fatal scythe of Time, he mowed down the people like grass, and immerged the poor remains in horror and despair."

Having advanced thus much in support of the natural causes of universal distempers or epidemic pestilences, culled from the histories of pestilences from the earliest ages, we arrive at the consideration of that 'vexata quæstio,'—contagion.

# CHAPTER XI.

## OF CONTAGION.

CONTENTION on such a subject as contagion is not to be wondered at, when we consider the obscurity attendant on all that relates to subtle agencies (the supposed qualities of contagion); and inasmuch as we observe that different effects arise from the same causes, as also similar effects from different causes in the human body, a vast field is necessarily opened up for contention, as every impartial observer will admit.

That the doctrine of contagion is of comparatively modern origin (subsequently to Hippocrates), historical research fully shows, and it would be really an endless, if not an unprofitable, task to review the innumerable arguments of which contagionists and their opponents have from time to time availed themselves in support of their respective opinions, especially when the controversialists can enlist on the one side such names as Chisholm, Clark, Cleghorn, Pringle, Bianchi, Lind, Meade, Warren, and a host of others, as contagionists, and on the other side, as non-contagionists, such men as Hillary, Huck, Hunter, Jackson, Bouland, Pinckard, Bancroft, Scott, Rush, Miller, Caldwell, Chervin, besides very many others of more modern date.

With reference to our present subject, contagion, it has always been with me a difficulty to understand the precise or real sense in which contagionists generally write; and I must confess my inability to comprehend the meaning they attach to the term contagion, and also to that of infection, so contradictory are their applications of the terms *contagion* and *infection*, some using them synonymously, others

making distinctions, between contagion and infection, of such arbitrary signification, that they are really neither definite nor intelligible; whilst contagionists themselves often depart from their *avowed* principles. For example, Papôn, in his work entitled 'Epoques Mémorables de la Peste,' considers the undoubted causes of plague to be uncultivated lands, marshy soil, corrupt lakes, filthy cities, concurring with occasional causes, such as intemperature of the seasons and famine, whilst the bent of his researches is evidently to prove that in every modern plague *foreign* contagion was the cause!

Dr. Meade, notwithstanding his advocacy of contagion, like most other contagionists, is guilty of inconsistency in stating, "that a corrupt state of the air attends all plagues."

Again, Dr. Patrick Russell, a great contagionist, when giving a most minute account of the origin, spread, and decline of the plague, admits the inutility of quarantine laws for the prevention of contagion, and, curiously enough, he lays much stress on what he terms "a pestilential constitution of the air."

Dr. Hamilton, another great contagionist, affirmed that the influenza which prevailed in England,—in fact, all over Europe, in the year 1782, was contagious, and that the malady was propagated by contagion only; yet at the same time he informs us that, "in different places, many hundreds were seized with pestilence at one and the same time:" and Dr. (afterwards Sir Gilbert) Blane, also a contagionist, speaks of the influenza as having affected mariners in the very midst of the ocean!

It would appear, however, that to reconcile conflicting opinions, various modern writers of experience and talent have endeavoured to show that epidemic diseases, *not* contagious at their commencement, may acquire that character from confined air, filth, and other accumulations. That impure air, want of light, crowding together *unwashed* numbers, &c., will by predisposition contribute to the production and aggravation of disease, as we observe to be the case

in jails, hospitals, and in camp, I can fully understand; but that epidemic diseases, such, for instance, as plague, yellow fever, or cholera, are ever propagated by contact—contagion, I, after twenty-five years' residence in pestilential countries, have no reason to believe; for I have seen epidemics seize on vast numbers at once,—I have sometimes seen them attack a whole people, or a part thereof, whilst at other times they have prevailed amongst the inhabitants of particular provinces and cities only. On what principle of contagion or infection, I would ask, can such universality or partiality of disease be accounted for or explained? Surely not from any cognizable property of contagion. All that I have ever read and seen of the nature of epidemics militates against the doctrine of contagion, whilst all that has been adduced, as far as my researches show, in support of contagion, has been of a negative, or at all events not of a positive, nature.

Epidemic diseases, which have appeared and spread at different seasons,—in fact, at all times of the year,—in the middle of summer, for instance, as well as in the depth of winter,—which have also been found traversing whole continents, continuing their course for many successive months, and often assuming a definite direction or progress, often affecting large masses of people living on the same spot, while others in adjoining localities are exempt,—cannot, I contend, be attributed to contagion, but to the qualities and influences of the surrounding atmosphere, coupled with enervating habits, &c.

AGAIN, CONTAGIOUS DISEASES ARE RECOGNIZABLE BY THE DETERMINATE PERIODS OF THEIR PHENOMENA, ESPECIALLY AS REGARDS SPECIFICATION, AS ALSO BY THEIR MODE OF PROPAGATION, WHILST, IF EPIDEMIC PESTILENCES WERE DEPENDENT ON, OR CAUSED BY, CONTAGION, THEY WOULD NEVER CEASE UNTIL WHOLE COMMUNITIES BECAME EXTINCT!

A period of one hundred and sixty years has elapsed (up to the year 1832) since the occurrence of any plague or aggravated pestilence in this our own country, notwithstand-

ing our intercourse with countries where awful pestilence may be said always to exist. Whence, then, I would ask, our immunity for so long a period, if pestilence BE IMPORTABLE AND CONTAGIOUS? for it would appear that in spite of our increased intercourse and commerce with pest-ridden spots, our freedom from pestilence has been greater, manifestly from the change in our moral and physical condition since the seventeenth century, which has given rise to a degree of public health to which our ancestors were strangers when pestilence was rife in our land, and which is not attributable, as some may suppose, to the vigilant enforcement of those bugbears, 'quarantine laws,' of which a recent writer very justly observes, "that they are not only absurd and needlessly burthensome to commerce, but perverse and barbarous in the extreme, independent of the injurious fears induced, being as dangerous to communities as they militate against common sense and HUMANITY."

Whilst on the subject of quarantine, the question may be asked,—How is it that so little has been elicited in support of contagion from the working of lazarettos?—it being to the interest of those who hold such views to publish THE LETHAL effects of their lazaretto occupations. Might we not expect, from the testimony of the responsible officers in charge of such establishments, to be informed of an awful annual sacrifice of life in such perilous occupations, from the terrible exposure of those employed in them in unpacking contagion, as it were wholesale? Have we any evidence from lazarettos to warrant the belief in contagion? I think not; at least my *not* very limited researches have afforded me no such evidence, and I fear that it is with the subject of contagion, as with other matters appertaining to pestilence, that authors seek for the peculiar facts which especially favour their preconceived opinions, whilst they strain the simple bearing of facts to answer their own hypotheses. Further, we find pestilence still as prevalent and destructive as in former years in those cities in which the march of improvement has not appeared.

Thus Grand Cairo and Constantinople to this day are never free from the plague. Grand Cairo is always crowded by a vast number of inhabitants of the lowest order in the most abject state of poverty. The streets are very narrow and close, and thirty or forty persons often inhabit one small house. It is situated in a sandy plain at the foot of a mountain, which, by excluding the winds, makes the heat more stifling. Through the midst of it passes a great canal, which is filled with water at the periodical overflowing of the Nile, and after the river has fallen it is gradually dried up; into this are thrown all manner of filth, carrion, &c., so that the stench which arises from this and the mud together is insufferably offensive. At certain periods of the year the plague preys upon the inhabitants, first appearing amongst the lowest orders of the people, who are mostly in a wretched condition: its progress is stopped only when the Nile, by overflowing, washes away this load of filth; the cold winds, which set in at the same time, purifying the air. The plague in Constantinople is generally observed to break out in that part of the city which is low and marshy.

On searching the ancient records of medicine, and on referring to history, both sacred and profane, nothing in the shape of evidence can be found, previously to the time of Hippocrates, to show that epidemic pestilences were thought to be contagious; in fact, all writers before the Arabians invariably speak of epidemic diseases as arising from places, seasons, and constitutions of the air; and nowhere in his works does the great parent of medicine, the erudite and all-observant Hippocrates, entertain the idea of contagion:—*Δεῖ δὲ καταμανθάνειν τὴν Κατάστασιν τῶν Ὡρέων ἀκριβῶς, καὶ τῶν Νούσων ἑκάστην.*

I would ask of all unprejudiced persons, What could contagion have had to do with the terrific and wide-spreading outbreak of pestilence at Kurrachee (see 'History of Pestilences,' p. 177), where 8000 victims were at once seized and carried off in a few days?

But that which I would urge in support of the NON-CONTAGIOUSNESS of epidemic pestilences, irrespective of EVERY other authority, is the remarkable fact, that in our most ancient medical treatise, the 13th chapter of Leviticus, no mention whatever is made of epidemic diseases being reckoned contagious, although at the time when the Levitical code was being propounded there was no lack of experience in epidemic diseases; for in the days of Moses the times in Egypt were calamitous indeed:—pestilence and famine ran riot through the land. Had epidemic diseases, then so common and lethal in Egypt, been considered contagious, the presumption is that they would have been enumerated as such among those which were specified as possessing that character, viz. leprosy, scabies, lues, &c.; and when we observe such minuteness displayed in the Mosaic ordinances, to the very freeing of houses from damp previously to occupation, we cannot suppose that precautionary directions, as regards such universal and lethal maladies as epidemics, would have been omitted. With this remarkable fact before us, derived from sacred authority, I feel at a loss to conjecture the grounds on which the idea of contagion is *at all entertained*, more especially as we have the occurrence of pestilential disease not only foretold, but their very nature and mode of production positively conveyed to us from the same divine source.

"The Lord shall smite thee with a consumption, and with a fever, and with an inflammation, and with an extreme burning," &c. (Deut. chap. xxviii.)—"And it shall become small dust in all the land of Egypt, and shall be a boil breaking forth with blains upon man, and upon beast, throughout all the land of Egypt." (Exod. chap. ix.)—"But the hand of the Lord was heavy upon them of Ashdod, and he destroyed them, and smote them with emerods" (violent dysentery), "even Ashdod and the coasts thereof." (1 Sam. chap. v.)—"I also will do this unto you; I will even appoint over you terror, consumption, and the burning ague," &c. (Levit. chap. xxvi.)—"I will smite the inhabitants of this

city, both man and beast: they shall die of a great pestilence." (Jeremiah, chap. xxi.)—The sun and the moon standing still in their habitations, the mountains trembling, the waters overflowing, causing famine and pestilence. (Habakkuk, chap. iii.)—"Behold, I will send a blast upon him." (2 Kings xix.)—"The Lord shall make the rain of thy land powder and dust." (Deut. xxviii.)—"Thy heaven shall be brass, and the earth iron." (Ibid.)—"And if the family of Egypt go not up, and come not, that have no rain, there shall be the plague," &c. (Zechariah, chap. xiv.)

In conclusion: fully impressed with the necessity that for the purpose of insuring anything like rational conclusions as to the nature and origin, or causes, of epidemic pestilences, we should not only enter upon their investigation divested of all prejudice in favour of *exclusive* doctrines, but at the same time be actuated by an impartial desire for COMPREHENSIVENESS, as being the only, the true way to surmount the innumerable difficulties attendant on the investigation of universal distempers, and premising with the opinion that at the onset we should be cognizant of the *absolutely* necessary distinction between the predisposing and the exciting causes of disease, the due consideration of which guides to preventive or sanitary measures, *I take leave* to reiterate my opinion,—an opinion founded on a careful review of the foregoing history of epidemics,—that all epidemic pestilences or diseases are to be accounted for on the principle of natural causes, viz., THAT ATMOSPHERIC DISTURBANCE, CONSISTING OF VARIATIONS OF TEMPERATURE, HYGROMETRIC INFLUENCE, ATMOSPHERIC PRESSURE, ELECTRICAL TENSION, &C., ARE THE EXCITING CAUSES; WHILE, ON THE OTHER HAND, WANT OF LIGHT, IMPURE AIR, ESPECIALLY FROM DEFECTIVE VENTILATION, IN WHICH ARE INCLUDED MALARIA AND ALL OTHER NOXIOUS VAPOURS, FROM WHATEVER SOURCE ARISING; SCANTY DIET, AND HABITS INDUCED BY THE IRREGULAR, ARTIFICIAL LIFE OF MANY, ARE THE PREDISPOSING CAUSES, WHICH BY ENERVATING AND

OTHERWISE SPOILING THE SYSTEM, RENDER IT MORE SUSCEPTIBLE OF EXTERNAL ATMOSPHERIC IMPRESSIONS IN THE PRODUCTION OF EPIDEMIC PESTILENCE OR DISEASE.

*Λεγέτω μὲν οὖν περὶ αὐτοῦ ὡς ἕκαστος γιγνώσκει, καὶ ἰατρὸς, καὶ ἰδιώτης, ἀφ' ὅτου εἰκὸς ἦν γενέσθαι αὐτὸ, καὶ τὰς αἰτίας ἅστινας νομίζει τοσαύτης μεταβολῆς ἱκανὰς εἶναι δύναμιν ἐς τὸ μεταστῆσαι σχεῖν.*—"And now I leave every one, whether physician or not, to pass his own opinion concerning it, pointing out whence it was likely to arise, and what causes he thinks sufficient to produce so entire a change in the constitution of the human body."—(Thucydides on Epidemics.)

## CHAPTER XII.

### PROPHYLAXIS; OR THE MODE OF PREVENTING DISEASE.

" Organic forms with chemic changes strive,
Live but to die, and die but to revive;
IMMORTAL MATTER braves the transient storm,
Mounts from the wreck, unchanging but in form."

THE original mandate of the Creator has provided that by various natural processes a constant equilibrium shall be preserved and maintained, so that from age to age, until all the purposes for which the earth is sustained be completed, the same ends will be accomplished by the same agency:

" That very law which moulds a tear
And bids it trickle from its source,
That law preserves the earth a sphere,
And guides the planets in their course."

We further know that all organized matter, whether animal or vegetable, possesses the materials of which they are composed, for a limited time only, life itself being but a boon, lent to serve the purposes of Infinite Wisdom—

" Which thus alternating with death fulfil
The silent mandates of the Almighty's will;
Whose hand unseen the works of Nature dooms,
By laws unknown;—who gives and who resumes."

Again, on reviewing the histories of bygone ages, we learn that from the earliest times disease has visited every country with a frequency and malignancy always proportioned to the intensity of the predisposing causes. Under the head of

Nature and Causes of Disease, I have already advanced that disease arises from certain conditions or vicissitudes of the atmosphere, together with the application of other powers producing direct debility. Over the former, as the exciting, the vital cause, we have but little control; it is the latter only, the predisposing causes, that we can attempt to counteract with a fair prospect of success. Seeing that such predisposing causes more generally arise from the infraction of the unalterable laws originally laid down for the government of mankind,—from a neglect of the most obvious laws of our being,—and that Providence, for the most part, acts by SECONDARY CAUSES, we should direct our efforts to the arresting of every condition which *predisposes* to or aggravates disease, such condition being more or less subject to human regulations.

"Prevention," says the adage, "is better than cure." When the sources of sickness have been remedied, the production of the evil has been limited, if not totally annihilated; it is, therefore, to the adoption and enforcement, by judicious legislative enactments, of prophylactic measures, based on scientific views, that we would direct especial attention; for by such measures we not only, to a great extent, prevent disease, by rendering the body less susceptible of it, but, when attacked by it, we lessen its fatality, by placing the vital system in a normal condition, capable of bearing up against it:—

"Salus populi est suprema lex."

It is a lamentable fact, that in this our own country, with all its practical talent, and its great advance in civilization, hitherto so little progress has been made in a matter deeply involving the moral, as well as the physical, condition of the great mass of our population. As one proof out of many of what may be effected by judicious measures, we may advert to the present condition of our navy, as contrasted with that of the last century. Formerly we heard among our seamen of nothing but dysentery, fevers, scurvy, &c., which diseases have been known to depopulate whole fleets. In the year

1726, when at sea, great mortality occurred from these scourges in the fleet, consisting of seven ships, under the command of Admiral Hosier, on the West India station. He twice lost the crew of his own ship. In the year 1741, also at sea, half the crew of Captain Anson's fleet died from scurvy in less than six weeks after leaving England; and in the year 1780, 11,732 cases of scurvy, dysentery, and fever were sent to Haslar Hospital from the Channel fleet! whilst now, from the attention paid to the construction of our shipping, to ventilation, cleanliness, and diet, we scarcely meet with these diseases among the seamen, and the wards of Haslar Hospital, which formerly were crowded with cases of scorbutic disease, now seldom exhibit a case.

The two grand essentials for vitality are Light and Air, to which may be added, Water. These, which are supplied to us by an all-wise and beneficent Creator in unlimited abundance, are indispensably necessary to a healthy state of animal life; the absence of the one, or impurity of the other, as being detrimental to life, should take the lead of all sanitary measures.

> "Light ——————
> —————— Nature's resplendent robe!
> Without whose vesting beauty all were wrapt
> In unessential gloom."

We know from experience, that the influence of light and atmospheric temperature upon living bodies is very similar, being manifested by the strongest stimulating effects; in fact, light is known to be an important agent in varying the phenomena of the atmosphere, its stimulating effects being more or less modified by light, according to the permanence and intensity of such light. The sun being the principal source of light and heat, their influences may be considered as inseparable, and acting in concert; if a thermometer were to be removed from the dark into the light, the mercury would be seen to rise, and, on the other hand, if it were to be conveyed from the light to the dark, it would fall.

" In tubes of glass mercurial columns rise,
Or sink obedient to the incumbent skies;
Or as they touch the figured scale, repeat
The nice gradations of circumfluent heat."

Milton beautifully apostrophizes the great luminary, Light, thus:

" Hail, Holy Light! offering of Heaven's firstborn,
Or of the eternal co-eternal beam,
Bright effluence of bright essence increate,—
Thy fountain who shall tell? Before the sun—
Before the heavens thou wert, and at the voice
Of God, as with a mantle, didst invest
The rising world of waters dark and deep."

Commencing with the properties of light, we find its influence on inorganic bodies and vegetables to be unequivocal; in short, it may be said that so very extensive is its influence, that there is not a substance which, when exposed to its action, does not experience some alteration. Without light, independently of the heat which is its ordinary concomitant, there would scarcely exist a trace of vegetation, and when we reflect on the remarkable dependence of the animal and vegetable kingdoms on each other, the animal by the extrication of carbonic acid gas, affording a fluid essential to vegetation; the plant, on the other hand, by the emission of oxygen, supplying the atmosphere with the gas which is equally necessary for the well-being of the former, we cannot suppose light to be less essential to animal life.

The chemical effects of light, and its influence on animal and vegetable vitality, have much engaged the attention of philosophers:—

" O Sun—
Thou shin'st in boundless majesty abroad,
High gleaming from afar—prime cheerer, heat;
Of all material beings first and best!
Efflux divine!
Without thy quickening glance, our cumbrous mould
Were brute, unlovely mass, inert and dead;
And not as now, the sweet abode of life.
How many forms of Being wait on Thee!

Inhaling spirit; from the unfetter'd mind,
By thee sublimed, down to the daily race,
The mixing myriads of thy setting beam—
The vegetable world is also thine!
The very dead Creation, from thy touch,
Assumes a mimic life. But this
And all the much-transported Muse can sing,
Are, to thy splendour, dignity, and *use*,
Unequal far! Great delegated Source
Of Light and Life, and Grace and Joy below."

With reference to the vegetable kingdom, we see that the most delicate of the discous plants or flowers turn constantly towards the sun; it is also well known that the change of position of the leaves of plants, at different periods of the day, is entirely owing to the agency of light; plants growing in the shade, or in darkness, are pale, and without their natural and healthy colour—they become 'etiolated' or blanched. Gardeners avail themselves of a knowledge of this fact, and, by excluding the light, they obtain celery, lettuce, &c., in a white state. If a potato be placed in a dark cell, with but one small aperture for the admission of light, on germinating, the sprout will turn and grow towards the light, and will continue pale and light until it reaches the light, and becomes fairly exposed to its stimulus, when its natural and healthy colour will be assumed.

Light contributes to the maturity of seeds, fruit, and flowers. Professor Davy found by experiment that red rose-trees, carefully excluded from light, produced roses almost of a white colour. Vegetables are not only indebted to the light for their colour,* but their taste and odour are likewise

* Some time ago, some fagots were sent into the Lings coalpit, belonging to the Wingerworth Coal Company, for the purpose of filling up the chasm over the timber, where the roof had given way. A bough of hawthorn was carelessly thrown aside in an opening, and it is now in full leaf and blossom. A branch of it was brought out at night; but the leaves, and blossoms also, began to flag in a few hours after it was exposed to the fresh air. There is still a part of the thorn in the pit, 500 yards from the bottom of the shaft, in a healthy growing state; all the difference observable between a thorn growing on the top of the ground, and the one above named, is, that the leaf is quite white, and the blossom without smell.

derived from, or at all events greatly influenced by, the same source. Light is also an essential element in the topographical arrangement of plants. The southern slopes of our hills and mountain ranges are always clothed with a more fully developed race of plants than the northern; this depends wholly upon the greater degree of light and heat which the former enjoy. The more free the exposure, the more readily will most plants blossom, and yield a rich fruit; so well is this understood in the grape countries on the Rhine, that the right bank of that river, which faces the sun, is reckoned to be much more valuable than the left, and commands a higher price for its wines.

Turning to the animal kingdom, which is more immediately our province, we find in that portion of nature an equal dependence on light for its proper development and vitality. Animals droop when they are deprived of light; there are instances on record where persons having been long confined in dark places or dungeons (even though well ventilated), their whole complexion has become sallow, their general health deteriorated, pustules, with aqueous humours, have opened out upon their skin, and they have become languid, and frequently dropsical. In the absence of light, there is a predominance of the white fluids of the body; the action of the lymphatic system is exalted, and it imparts to the organization of animals that remarkable blanched appearance called 'etiolement.' Hence the well-founded supposition, that the absence of the solar rays of light contributes greatly to the development of scrofula.

"Let in the sun, and you shut out the doctor," says an old Italian proverb. The effects of the free admission of light, as a point of great importance to the well-being of every individual, has been proved by the experiments of Dr. Edwards, who has shown that if tadpoles be nourished with proper food, and exposed to the renewed action of water (so that their bronchial respiration may be maintained), but are entirely deprived of light, the growth continues, but their metamorphosis into the condition of air-breathing animals is

arrested, and they remain in the form of large tadpoles. Dr. Edwards also observes, that persons who live in caves and cellars, or in very dark, narrow streets, are apt to produce deformed children. Rabbits, which were kept in a dark cellar, were affected with mollities ossium, their limbs being useless.

It has been recently stated, that the cases of disease in the dark side of an extensive barrack at St. Petersburgh, have been uniformly, for many years, in the proportion of THREE to one to those on the side exposed to a strong light.

Dupuytren relates the case of a lady whose maladies had baffled the skill of several eminent practitioners. This lady resided in one of the narrow streets of Paris, and in a dark room in which the sun never shone. After a careful examination, Dupuytren was led to refer her complaints to the absence of light, and recommended her removal to a more cheerful situation: the change was followed by the most beneficial results; all her complaints in a very short time vanished.

In a series of experiments made by Mr. Simon upon cats, which that gentleman confined in dark cellars, he found after death disease of the kidney, resembling that morbid state of the gland generally known as morbus Brightii (Bright's disease), and, in other cases, incipient fatty degeneration of the liver.

Humboldt has remarked, that among several nations of South America, who wear very little clothing, he never met with a single individual with a natural deformity; and the celebrated Linneus, in his account of his tour through Lapland, enumerates constant exposure to solar light as one of the causes which render a summer's journey through high northern latitudes so peculiarly healthful and invigorating; whilst the reverse is observed in less favoured regions—

——————— " beyond Tornea's Lake,
And farthest Greenland, to the Pole extreme,

Where, failing gradual, Life itself goes out;
There Winter holds his unrelenting court.
Near the wild Oby live the last of men!
There, half-enliven'd by the distant Sun,
That rears and ripens man as well as plants—
There human nature wears its lowest form!"

We will now enter upon the consideration of another of the grand essentials of vitality, Air—

"Vivit Ætherias vitaleis suscipit auras."

The word 'atmosphere' is of Greek origin, and signifies a body of vapour in a spherical form. The rapidity of atmospheric air cannot be explained on any principle but its fluidity; therefore atmospheric air, the permanently elastic fluid which surrounds the earth, although invisible, may be said to be material, and to possess all the common properties of matter; for it occupies space, attracts and is attracted, and consequently has weight. It likewise partakes of the nature of a fluid, for it adapts itself to the form of the vessel in which it is contained, and presses equally in all directions. Its power, when vitiated, as a cause of disease, can only be determined by a scientific examination of its properties, especially as regards its affinities to other things. It should therefore claim the attention of every individual, professional or non-professional, who has the comfort of mankind at heart.

"It is scarcely possible," says Professor Davy, "duly to appreciate, in the vast economy of terrestrial adaptations, the importance of the mechanism by which gases and vapours rapidly permeate each other's bulks and become equally diffused. The atmosphere which surrounds the globe consists of a mixture of several aeriform fluids in certain fixed proportions, upon the proper maintenance of which, by measure and weight, the welfare of the whole organic creation depends."

One of the principal uses of the atmosphere is to supply animals with a medium for breathing. Breathing is an

essential effort of the human system. Its immediate effects are the operation of considerable changes on the blood—

"In the blood is life, which vitality depends on air."

An outlet is also afforded to carbonic acid gas, and the acquisition of a quantity of oxygen and nitrogen, which, combining with the constituent parts of the chyle, convert it into the nature and quality of nutritious blood. The temperature of the animal is supposed also to be a consequence of the decomposition of air in the respiratory process. The processes of respiration and combustion perpetually tend to the destruction of the vital air, and the substitution of another, which is a deadly poison to animal life. By means of ventilation and circulation,—causing currents of air,—such poisonous air is not allowed to accumulate, but is diffused through the surrounding space, while the vital gas rushes, by a counter-tendency, to supply the deficiency which the local consumption may have created; and thus is explicable one of the self-apparent reasons as to the imperious necessity for free ventilation.

Notwithstanding our imperfect acquaintance with the manner in which water is suspended in the atmosphere, it is well known that the human body is greatly influenced by the aqueous vapour in such a state of suspension, and that the sources of poisonous emanations are active in proportion to the grade of atmospheric humidity and its temperature. An atmosphere surcharged with humidity not only prevents the cuticular discharge necessary to a healthy state, but sensibly diminishes the watery exhalations from the lungs, thereby inducing various morbid effects on the system. We observe the conversion of volatile bodies into a gaseous form exemplified in the perfume of flowers being more sensible during the fall of dew of an evening or in a morning, when the dew evaporates and is dissipated by the rays of the morning sun: in the same manner, the exhalation of deleterious matters, such as the filth of ditches and badly-drained sewers, becomes more active. Excess of moisture also, by diminishing the

vital action, provides another cause of disease in conjunction with the enervating effects of deleterious gases: hence the more poisonous properties or injurious action of those gases in stagnant atmospheres, which are always more humid than where there is efficient circulation, *i. e.* ventilation.

" Of what important use to human kind,
To what great ends subservient is the wind!
Where'er the aerial active vapour flies,
It drives the clouds, and ventilates the skies;
Sweeps from the earth Infection's noxious train,
And swells to wholesome rage the sluggish main.
For, should the sea unagitated stand,
Death, with huge strides, would desolate the land;
The scorching sun, with unpropitious beam,
Would give to grief an everlasting theme;
And baneful vapours, lurking in the veins,
Would fiercely burn with unabating pains.
Such were the plagues that spread o'er Egypt's land,
When Moses, taught by God, stretch'd forth his hand;
From animated dust fell myriads rose,
And vengeance shed o'er Israel's harden'd foes."

Signal benefit from ventilation was observed some years ago in the Savoy and Newgate prisons, in both of which the jail fever was, as it had always been, frequent and very fatal. It was tried on the recommendation of the great and good Dr. Hales, whose studies and experiments were constantly directed to the benefit of mankind. The good effects exceeded even the Doctor's most sanguine expectations, for the numbers attacked were greatly decreased, and the fever became less fatal, after due ventilation had been established, and the supposed contagion had been thereby arrested. On a reference to the writings of the benevolent Howard, we shall perceive that he found the prisons on the Continent perfectly free from pestilential fever, owing to the apartments in which the prisoners were confined being spacious and well-aired.

" Leaves, lungs, and gills the vital ether breathes,
On earth's green surface, or the waves beneath."

Dr. Thomas Bateman, writing on the low fevers of London

occurring among the poor, observes that he has often been surprised, after having seen a patient in the low muttering delirium of fever while in his own habitation, to find him with clear intellect and invigorated system after passing a night in the House of Recovery, although no medicine whatever had been given. We have ourselves observed the remarkable and decided effects on the pulse, caused by the removal of patients suffering from low typhus and other fevers;—their improvement has been general and decided, merely from the removal from a lower to an upper ward, where the ventilation has been more perfect. Of the many striking illustrations of the benefit resulting from the free access of pure air, the remarkable decrease of disease and death among the carnivora in the Zoological Gardens, as reported in 1845, since the improvement of the ventilation, may be instanced. The following statement, taken from the history of the Dublin Lying-in Hospital, shows in an extraordinary degree the advantages resulting from free ventilation. In this hospital, 2944 infants out of 7650 died in the years 1782-83-84 and 1785, within the first fortnight after their birth,—that is to say, nearly one child out of every six died of convulsions, which were called nine days' convulsions by the nurses. These children foamed at the mouth, the jaws became locked, the face swelled, and looked blue, as though they were choking. This last circumstance led the physician in attendance to attribute the disease and great mortality to the close and crowded state of the hospital, causing a deficiency of good air. Air-pipes, with other openings, were contrived,—the rooms were kept sweet and fresh by means of ventilation,—and the consequences observed were, that in the year

| | | | | | | |
|---|---|---|---|---|---|---|
| 1786 | out of | 1372 | children | there | died | 51 |
| 1787 | „ | 1375 | „ | „ | | 59 |
| 1788 | „ | 1496 | „ | „ | | 55 |
| | | 4243 | | | | 165 |

So that, since ventilation has been properly effected, out of

4243 children there died 165; whereas the average number of deaths from the same numbers, previously to ventilation, was 1632!

"And all proclaim Omnipotence Divine.

* * * * * *

We view his kind, his life-preserving care,
In all the wondrous properties of AIR.
Were once the energy of *air* denied,
The heart would cease to pour its purple tide;
The purple tide forget its wonted play,
Nor back again pursue its curious way;
Gross vapours would the springs of life pervade,
And make the brightest human blossom fade."

Dr. Barron, among a series of experiments, confined a number of young rabbits in a close damp situation; many of the animals died at intervals varying from five to seven weeks from the time of their incarceration. On the removal of the survivors to dry localities, which were otherwise favourable to health from being well ventilated, their condition soon became manifestly improved. This fact has been further confirmed by the experiments of Sir James Clark and Dr. (now Sir Robert) Carswell and Dr. Jenner.

In a report of the sickness which occurred among the Edinburgh Police, as drawn up by the medical attendant, the effects of an ill-ventilated station-house are noticed. It furnishes an additional example, if such were needed, of the importance of pure air and plenty of it. The men boarded and lodged in this place were originally the healthiest and youngest men in the force; yet the rate of sickness among them was very high, as was also the mortality—being more than treble that of the other part of the force located elsewhere. Out of thirty-seven men occupying the house in question, only one was found to be free from functional disorder: the prominent symptoms being great sensibility to atmospheric changes, copious cold perspirations, a constant sense of fatigue, with pain in the eye-balls and loss of appetite.

It would appear that in all propositions for sanitary im-

provements, the all-engrossing topic is—the noxious properties of stinking vapours. The cesspools and sewers seem to be the chief object of solicitude, even in legislative proceedings; as though there were no deleterious gases surrounding our globe, inappreciable to the olfactories, and yet of far more consequence in a sanitary point of view. Now, although vapours arising from cesspools and imperfect drainage unquestionably constitute one of the many predisposing causes to disease, they are not of such paramount importance as ventilation; for their noxious influence, from whatever source they may arise, depends more or less on their existence in open or confined places. The indefatigable Parent Duchatelet, in his work on 'HYGIENE PUBLIQUE,' has shown that stenches, filthy exhalations, however disgusting, are not necessarily the cause of disease, when not pent up, as *à priori* they might be supposed to be. He informs us that at one of the most extensive 'Chantierres d'Equarrissages,' situated at Montfauçon, within a mile or two of Paris, occupying a large open space of ground, where thousands of horses, dogs, and cats are taken yearly to be slaughtered, and where almost all the ordure of Paris is collected together, the most abominable stenches are to be met with: the ground, saturated with the blood of the slaughtered animals, sends forth a most disgusting fœtor, as do also the enormous mounds of putrid flesh collected for the purposes of manure, and for the generation of maggots for feeding poultry! Yet the workmen living and employed in these places, in the filthy occupation of glue and music-string making, &c., enjoy an immunity from disease that is truly astonishing, while their exemption from illness during the destructive prevalence of cholera in Paris was equally remarkable. The existence of such disgusting nuisances, as represented by Duchatelet, can by no means be approved of; but reference to them is made here to show, by well-ascertained facts, that the remedying of the effluvia arising from imperfect drainage, cesspools, *et hoc genus omne*, is not of such VITAL importance as the free admission of the atmosphere; for we have seen

that stagnant air is caused by the want of a free current, and that it is rendered more humid than usual by the non-admission of light (which is heat), and further that that humidity increases the activity of noxious gases, so that where ventilation is defective, there there will always be an accumulation, and consequently a concentration, of the gases from cesspools, exhalations from the body by expiration, and from the skin; all these facts, physiologically considered, will show the vast importance of the access of light and of pure air, on which all sanitary measures, to be effective, must be based. Ventilation, by striking at the root of the mischief, will remedy all its evil consequences.

Again, it must be recollected that the object of ventilation is not solely to dissipate and get rid of odours offensive to the olfactories, but also to supply the system with a vital stimulus—the very *pabulum vitæ*—the oxygen necessary for the proper performance of the functions of the different organs, which cannot be obtained in due proportion from stagnant air—the supply in such an atmosphere from defective circulation being inadequate to the demand or consumption. When an animal is inclosed in a limited quantity of atmospheric air, it dies as soon as the oxygen has been consumed; and no other air will maintain animal life but oxygen, or a mixture which contains it in a certain proportion. Further, ventilation, by supplying the vital stimulus, and inducing a normal condition, also fortifies the system against atmospheric vicissitudes—the grand excitant of disease.

Opening up and enlarging drains, or establishing them where none had previously existed, while the localities are allowed to remain in a crowded state, will, while such operations are being carried on, multiply the evil. A commencement must be made by rasing to the ground the dens of physical and moral iniquity which have been so disgracefully permitted to exist in the occupancy of those unfortunates who have it not in their power to remedy the miseries to which it never was the intention of Creative Wisdom that the meanest reptile should be subjected,

much less Man, once the image of his Creator,—His noblest work!

The subjects of Light and Air having been disposed of, we will next discuss the properties of Water:

> "That chief ingredient in Heaven's various works,
> Where flexile genius sparkles in the gem,
> Grows firm in oak, and fugitive in wine."

It is a necessary beverage for man and other animals,—is perpetually used as a solvent for a great variety of solid bodies,—acts an important part in conveying nourishment to the vegetable world, and gives salubrity to the atmospherical regions,—in fine, it is a fluid so generally distributed over our globe, and consequently so universally known, that to enter into the minutiæ of its various properties would be superfluous for the purposes of these pages.

> "If there be any universal medicine in nature,
> It is water"—says HOFFMAN.

Considering water dietetically as well as medicinally, it cannot but be a matter of wonder, to all who know anything of the water drunk in this great metropolis, that no measures have ever been taken for the purification of an element so essential to a healthy existence, although many excellent plans have from time to time been suggested by persons practically conversant with such matters. In the Report of a committee of the House of Commons, published so far back as 1836, it is stated of the water from the Thames, that it "receives the excrementitious matter from nearly a million and a half of human beings;—the washings of their foul linen,—the filth and refuse of many hundred manufactories,—the offal and decomposing vegetable substances from the markets,—the foul and gory liquid from slaughter-houses,—and the purulent abominations from hospitals and dissecting-rooms, too disgusting to detail." The polluted state of the water supplied to this vast metropolis is not, however, the only crying evil. The deficiency in quantity as well as the deleterious quality is also a matter of just complaint, the

supply of this first necessary of life being insufficient for drinking and culinary purposes, independent of its uses as an hygienic agent, for personal ablution; the salutary effects of which we will next consider—

> "And in the bath prepared my limbs I lave.
> Reviving sweets repair the mind's decay,
> And take the painful sense of toil away."

The use of the bath has doubtlessly existed from the beginning of the world. Bathing appears to have been a practice instinctively adopted by all nations and tribes throughout the universe. Amongst the North and South American Indians—in Africa—even among the most barbarous and uncivilized races—bathing is a usage to which they pay *scrupulous* attention: yet, strange to say, to this day, personal ablution is little known or practised in this otherwise proudly pre-eminent country, as a hygienic agent: it is viewed more as a matter of luxury, and then but very sparingly had recourse to, even by our wealthy and middle classes.

Socrates tells us that "bathing renders a man pure, both in soul and body." Clemens Alexandrinus says, it should be practised "for the sake of HEALTH and cleanliness, and, lastly, of pleasure."

The ancient Romans considered the bath as the most important item in the economy of their lives: they regarded it as indispensable for health and comfort;—an idea of the magnificence and luxurious construction of the Roman baths may be formed from the poetical description by Statius, of the baths of Claudius Etruscus:

> "Nothing there 's vulgar: not the fairest brass
> In all the glittering structure claims a place.
> From *silver* pipes the happy waters flow,
> In *silver cisterns* are received below.
> See where with noble pride the doubtful stream
> Stands fixed with wonder on the shining brim;
> Surveys its riches, and admires its state;
> Loath to be ravish'd from the glorious seat."

The most remarkable bagnios were those of the Emperor Dioclesian and Antonius Caracalla, with their curiously vaulted roofs, spacious apartments, and a thousand other ornaments and conveniences. Those of Dioclesian occupied 140,000 men many years in building them.

Bathing acts morally, as well as physically. It induces habits of cleanliness, which are found allied only with self-respect, improved temperance, intelligence, and morality.

> " This is the purest exercise of Health!
> Thus life redoubles; and is oft preserved
> By the bold swimmer, in the swift illapse
> Of accident disastrous.—Hence the limbs
> *Knit into force! and the same Roman arm*
> *That rose victorious o'er the conquer'd earth,*
> *First learn'd, while tender, to subdue the wave!!*
> E'en from the *body's* purity, the *mind*
> Derives a secret, sympathetic aid!!"

Nothing is more soothing to the irritable impulses of the passions, than the peculiar serenity which the bath imparts. The Romans in their days of sensuality, invariably had recourse to the bath to relieve the effects of their dissipation, and of great fatigue from travelling, &c. Who is there, we would ask, that has not experienced, after a night's debauch in the indulgence of luxuries, when the head and heart have been oppressed, and the nervous energies prostrated, the restorative and invigorating effects of the bath,—for what allays feverish irritability and perturbation of the nervous system so admirably as the *cold, tepid,* or *hot bath,* according as the offender may have been accustomed to use. Everywhere on the Continent, baths are to be had in the greatest state of perfection. The French perform entire personal ablution daily. In Italy, Holland, and Germany they patronise the bath to a great extent, and amongst the Turks and Persians, and throughout Asia, bathing is imperative as a part of their religion. They consider it an absolute necessary of life, whilst we, the most refined people in the world, are satisfied with a change of linen, and that too,

very often over a not very clean under-garment, or body flannel!

The Hungarians and Russians bathe after the manner of the ancients; in Russia especially, where the bath makes so much a part of the system of living, it is used by persons of every age, and under all circumstances. A Russian considers that the bath is a remedy for all his ailments; he flies to it on all occasions; men, women at their lying-in, and children, in almost all sicknesses, and before and after a journey, &c., resort to the bath as their *solatium*—which, to use the words of the illustrious Cullen, "imparts a sense of youth, vigour, and self-complacency." The Romans for five hundred years together were without physicians; it was by means of the bath they effected all their cures of disease, and to this day many nations cure their maladies by the use of baths,—in which there is nothing so very marvellous, as the simplicity of such means at first sight may lead persons to suppose, when we consider the importance of the skin in the animal economy, that it is not merely the organ of sensation, but that it is endowed with an extensive and complicated nervous apparatus, through which its sympathies with the entire organism are managed, and that it possesses extensive secretory, excretory, and absorbing powers, the *normal condition* of these functions being essential not only to *health*, but *to life itself*.

Considering our pretensions to all that is refined, there is perhaps no race of people more devoid of personal cleanliness than ourselves.* This is a fact (however unpleasant the reference to it may be) that admits of no contradiction, for the greater proportion, including even the *higher* and the middle classes of the population of this country, are never subjected to entire ablution during the whole period of their lives,—from their childhood to their death. Fancy an octo-

* A writer punningly remarks, that "Notwithstanding our national situation, and the dominion we naturally claim and boast of over the watery element, a degree of Hydrophobia still prevails among us."

genarian sweltering in the accumulated impurities of three-fourths of a century!

"Buried in smoke, in filth, and poisonous damps."

Can it be wondered at that *he* hands down to his offspring a corrupt, a tainted condition of fluids, which entails misery on them in the shape of scrofula, and every variety of skin disease?

Independent, however, of any hereditary predisposition to skin and other diseases, it is too much the custom for persons who merely splash with water their neck, face, and hands daily,—neglecting to wash their bodies from year to year, so that the effete matters of the system become condensed on the skin, thereby obstructing the exhalant pores, and causing various internal complaints, and very frequently universal itching,—to reconcile themselves with the idea that their sufferings have been caused by a scorbutic diathesis, which has been communicated to them by their progenitors, without any fault of their own, or any reference to their own filthy personal habits.

There is perhaps no greater absurdity than the common notion, that washing the face and hands, and occasionally the feet, constitutes personal cleanliness, or that such partial ablution can act hygienically. It is from all parts of the body's surface (more so from some than from others, especially from those that are covered) that chemical compounds and effete elements are eliminated in the shape of the sensible and insensible perspiration — therefore, to escape the evils attendant on filthy personal habits, we must not be content with partial ablution, but extend it to the entire body.

To all those who may be ignorant of, or any way sceptical on, the point of the hygienic value of personal ablution, we would recommend the perusal of the writings of Drs. Andrew Combe, Southwood Smith, &c. — they will then become acquainted with the important uses and functions of their *own covering*,—they will find in the above-mentioned authorities the subject of cuticular economy ably investigated, and

the intimate connexion of the outer and inner skins (the one being a continuation of the other) clearly set forth, showing that through the perspiratory system, consisting of openings in the skin called pores, the temperature of the body is not only managed to a certain extent, but also that a number of compounds, noxious to animal life, are removed from the system, by which means the blood and other fluids are kept in a state of purity. Perspiration, both as to matter or quality and its quantity, is absolutely necessary for the well-being of the human body: and in order to give some idea of the injurious effects of interference with the functions of the skin by the retention and the necessary accumulation of innumerable chemical agents, we may refer to Lavoisier and Seguin's researches on the subject. It was estimated by them that *eight grains* of perspiration are exhaled by the skin in the course of *a minute*, a quantity which is equivalent to *thirty-three ounces* in the *twenty-four hours*. On the cuticular surface it has been computed by them that there are seven millions of pores, which being blocked up by impurities for want of personal cleanliness, must prevent the elimination of their contents, and these being again thrown into the system by the circulation, cannot but be highly detrimental to health. Again,

IRRESPECTIVE OF THE IMPORTANCE OF THE SKIN TO EXTERNAL LIFE, IT IS NO LESS SO TO THE INTERNAL ECONOMY OF THE BODY IN PRESERVING THE GRAND EQUILIBRIUM OF THE DIFFERENT SYSTEMS (THE BODY BEING A SYSTEM OF SYSTEMS) BY WHICH THE HUMAN FRAME IS SUPPORTED.

To a want of personal purification by washing, therefore, the frequency of many of our most distressing and fatal diseases, such as those of the lungs and of the kidneys, termed consumption and Bright's disease, may be traced, as also the affection so common in this country, and very justly termed 'an Englishman's inheritance,' 'dyspepsia,' by our making the lungs, the kidneys, and bowels, which are depurating organs as well as the skin, act the part of scavengers

to the entire system, in the elimination of the greater portion of its impurities, and thus perform the proper office of the skin.

"We know," says an experienced and talented writer, "no country of Europe where there is so little disposition on the part of the people as in ours to give themselves even the exhilarating kind of ablution which is derived from bathing. Dirty faces, dirty clothes, dirty houses,—in fine, dirt all over, —are the characteristics of our people; and yet, bad as they are (from necessity generally), we know that there are worse effects underneath the surface, for where physical dirt is seen, there also presides *moral degradation.*"

It is true that within the last few years many praiseworthy exertions have been used for the purpose of establishing baths and wash-houses for the poor, which it is to be hoped will meet with further encouragement and extension; but as fashion rules a large portion of mankind, even in physic, we would suggest, that in order to secure a more complete and general use of personal ablution, our leaders of fashion and the upper classes who have so much to say on the subject of wash and bath-houses for the poor, should set the example by establishing baths, after the custom of the Orientals, in their own private residences; for, in spite of the increase of wealth and luxury, of the splendour and extent of the houses of recent erection in this country, baths are very far from being universal. Much may also be attained by patronising the few excellent but neglected public baths of this great metropolis; such measures would not only have the effect of increasing the number of those baths already established, but of inducing, from the increased facility, that personal purification, which ultimately would be found to be indispensable. "*Usus est altera natura.*"

In concluding these our remarks on the three grand essentials to life, we would observe that it is astonishing with what little amount of food a human being may live in health and strength, (we of course allude to those who eat to live,) when supplied in due proportion with the requisites for

vitality,—namely, LIGHT, AIR, and WATER. Further, we would ask, what can be more monstrous in this enlightened age, so outrageous of every principle of reason—so contrary to daily experience and common sense, as "the barring-out the free fresh air, and the meting-out to mortals of Heaven's light," by that blot on civilization, the window tax,—a tax which originated in iniquity,* at a time, too, when so much is being agitated about sanitary measures? † We neglect the first principles of vitality, to go groping into sewers and cesspools, which we repeat are but secondary considerations, the *ultimatum* of which will prove to be but little better than the relief of the olfactories, to tickle the gustatory nerves by furnishing for our palates, in the shape of Thames water, the filthy abominations of an overgrown city.

While on the subject of Prophylaxis, we must not omit allusion to the barbarous and pestiferous custom of intramural burial, which cannot be too strongly deprecated, as being not only subversive of every Christian feeling—from the daily revolting spectacle of violated sanctuaries—but otherwise demoralizing in the extreme, and poisonous to the public. "Pessimum est tempore Pestis habitare in locis mortuorum monumentis propinquis."

From the disgusting apathy evinced in this huge metropolis in the disposal of the dead, it would appear that nothing short of one of those terrible epidemic inflictions—inflictions with which in former days the Almighty was wont to visit the iniquities of his people, will bring those whose immediate province it is to a sense of the evils and perils of such abominations, which they, in spite of common sense, actuated by cupidity and fool-hardiness, still perpetuate.

> "Ye who amid this feverish world would wear
> A body free of pains, of cares the mind,

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* A.D. 1695, on 31 Dec., the House of Commons resolved to raise £1,200,000 for supplying the deficiency of the clipped money by a tax on windows.

† Fortunately for the people, this tax was repealed while these pages were passing through the press. It was not, however, deemed advisable to change the language used in the text.

Fly the rank city; shun the turbid air;
Breathe not the Chaos of eternal smoke,
And volatile corruption from the dead,
The dying, sickening, and the living world
Exhaled, to sully Heaven's transparent dome
With dim mortality."

That interment, or enclosing the dead in a grave, is a most ancient custom, there cannot be a doubt. Amongst the ancient Jews to have no burial was reckoned among the greatest of calamities. The exposure in any manner of their dead (even criminals) was looked upon as a pollution of their land. The Egyptians and Asiatics practised interment from the beginning of time. Subsequently, it became the custom to *burn* the bodies of the dead. By Homer's description of the funeral of Patroclus, it would appear that the Greeks used burning as early as the Trojan war. They also had recourse to interment, as is seen by their historians, who give an account of the manner in which the body was placed in the grave: Plutarch tells us that they were laid with their faces towards the east or towards the west; and Cicero informs us that, in early times, as those of Cecrops, interment was altogether made use of by the Greeks,—but we have ample testimony in history that it always took place *without* their cities, particularly amongst the Jews and Greeks, from whom the Romans derived the practice. We have several passages in the New Testament, showing that the Jews buried their dead *without* their city. Thus, the sepulchre in which Joseph of Arimathea laid our Saviour's body was in the same place where he was crucified (John xix. 41), which was near the city (John xix. 20). And we are taught in St. Matthew (xxviii. 52-53), that, at our Lord's passion, the graves were opened, and many bodies of the saints which slept, arose and came out of the graves after his resurrection, and *went into the Holy City*, and appeared unto many.

Servius, in giving an account of the unhappy death of his colleague Marcellus, which happened in Greece, says that he could not by any means obtain leave of the Athenians to

allow him a burying-place *within* the city. The Romans observed the same custom from the first building of their city; it afterwards became a law, as settled by the Decemviri, "Neither burn nor bury within the city." They generally buried near the highways, in fields appropriated for the purpose. Their reason seems to have been founded on sacred as well as civil considerations: among the former, that passengers might see the graves, and be reminded of their own mortality—hence, as Varro tells us, the inscription on the monuments, 'Sta viator!'—among the latter, "that the air might not be corrupted by the stench of putrifying bodies." It is related of Propertius, that he was very earnest in desiring that he might not be buried after the ordinary custom, near a *road*, for fear it should disturb his shade. There were, however, exceptions amongst the Romans to the prohibition of intramural burials, as in the case of the Vestal Virgins, who, Servius informs us, were allowed by law a burying-place within the city. The same privilege or honour was permitted to some extraordinary persons, as to Valerius Publicola and to Fabricius, to continue to their heirs; yet none of their families were afterwards interred there, but the body being carried thither, some one placed a burning torch under it, and then immediately took it away, as an attestation of the deceased's privilege, and his receding from the honour. The body was then removed for burial to another place without the city.

The ancient Persians never buried in cities or towns. Their kings were interred on a high hill on the east of Persepolis: generally throughout Persia and the Levant, there were no burying-places except those without the city.

The cemeteries of the Turks were always without the towns, that the air might not be corrupted by the vapours arising from the graves: they, in like manner as the Romans, also bury by the sides of highways, that travellers may be reminded to pray to God for the deceased. The Chinese adopt a similar kind of sepulture. Eusebius informs us that

when the Christians, by favour of Constantine, built churches in the cities, they had their burial-places allotted them outside the cities and towns.

According to Gregory of Tours, it was not until the latter part of the sixth century, about A. D. 590, that funeral places and cemeteries within the towns were consecrated.

Intramural burials and churchyards, it would seem, originated in the idea that persons passing the graves of their relatives or friends on their way to worship, might be reminded to offer up prayers for them; and the profit might also be another motive. The gross and horrible indignities now so frequently offered to the dead in consequence of over-crowding, to the great scandal of our national religion and character as a Christian people, could never have been contemplated; on the contrary, it was intended to offer a sacred asylum for the mortal remains of those whose memories were dear to us.

It was a maxim, not only with the Jews, but with all nations of the world, that holy places are polluted by the presence of dead carcases or of dead men's bones. Hence we find that when Josiah desired to profane the altars dedicated to idols, he burned dead men's bones upon them, which he took out of the sepulchres that were on the mount (2 Kings xxiii. 16). And when God threatened by Ezekiel to punish Israel, he told them that their altars should be desolate: "and I will lay the dead carcases of the children of Israel before their idols, and I will scatter your bones round about your altars." (Ezekiel vi. 5.) As the Jews by the divine law had ablutions, washings, and purifications for defilements by the dead, which is called *Βαπτισμὸς ἀπὸ νεκρῶν* (Ecclesiasticus xxxiv. 25),—a washing from the pollution contracted by the touch of a dead body,—so the Gentiles also from them had the rite of purification for defilements contracted from the dead; for the *Flamens* or *Funera Mater*, when dismissing the people after a funeral, sprinkled them with water to purge them of the pollution received by the sight of the interment; and on their entering into a temple, they were

first sprinkled with holy water, the *ωυραντεια*, so often mentioned by heathen writers, lest they should appear polluted before the gods.

Hosperian informs us that the ancients greatly opposed the innovation of burying in towns and churches, and on that account the councils of their bishops made several canons and decrees against intramural and church burials.

Whether the ancients burned or interred their dead, they never made choice of the place of divine worship, either to bury the body or deposit its ashes. For centuries after Christianity was established, they never presumed to make God's temple the carnicle of the dead: on the contrary, when the ancient mode of burial without the city began to be neglected, burials in churches were opposed by authority. A law in the Theodosian Code has these words: "Let no one imagine that the churches of the Apostles and Martyrs were designed for burial-places for the dead." The Emperor Charles the Great has this injunction, "Let no one bury any dead in the church." Subsequently, Louis the Pious most strenuously opposed burying within the churches, requiring "that the constitutions, used and settled by the ancient Fathers, should be observed in the burial of the dead."

So tenacious were the ancients of anything like desecration of their churches, that we are told by Baronius that one Borachas being persecuted by the Gentiles at Gaza, and having been left for dead, the Christians took him up and carried him into the church; the Gentiles and some of the authorities, on making inquiry for him, complained that the Christians had broken the liberty of their city, and had trespassed against their laws: for that they had brought a dead body into the city, which ought in no wise to be done; they supposing that Borachas was dead.

The being buried in or near a church, we are told, originated with the first Christian emperor, Constantine, who, although he did not desire to be buried within the church (a thing in his day unheard-of), was resolved that his remains should be deposited as near as possible to it, and

they were accordingly inhumed in the porch of the great church at Constantinople. Subsequently, the practice increased, and persons of quality claimed a similar privilege; their inferiors again, although they claimed not the right of being buried within the porches, deemed it an honour to be buried as near thereto as possible; hence, another reason assigned for large courts and yards about churches.

> "The melancholy ghosts of dead renown
> With penitential aspect, as they pass'd,
> All point at earth and smile at human pride."

Some time after, Pope Gregory the Great brought into the churches, and set up in the most solemn manner, relics enshrined in cases of gold, which were sometimes placed upon, or over, but generally under the altar. This made persons flock towards them, and bury their dead there, in the hope that both might receive benefit from such veneration. Thus, that which was originally considered a profanation, ultimately, through the corruption of subsequent ages, became not only a means of satisfying ambitious pride, but also apparently of conferring the blessings of eternal happiness.

The custom of interring persons of rank in churches was first introduced into this country by Cuthbert, the tenth Archbishop of Canterbury, who in the year A.D. 798 procured the privilege from the Pope to have churchyards for interment: with reference to burying in churches, the custom did not arise earlier than the year 1076. In the reign of William the Conqueror, the council held at Winchester, under Lanfranc, Archbishop of Canterbury, by the ninth canon, opposed burial in churches; it soon after, however, became a custom, and vaults were built under the altars.

"It is horrid," said the Austrian emperor, "that a place of worship—a temple of the Supreme Being—should be converted into a pest-house for living creatures."

A person who upon his death-bed makes it a condition in his will that he should be buried in a church or chapel,

acts like a madman; he ought to set his fellow-creatures a good example, and not do all in his power to destroy their health by exposing them to the effluvia arising from a corpse in a state of putrefaction.

The following extract is from a sermon preached in 1552 by Bishop Latimer, which proves that even at that comparatively early period, when the population of London could scarcely have been one-fifth of what it is now, the nuisance of intramural interments was found to be dangerous to health. "The citizens of Naim," observed the bishop, "hadd their buryinge-place withoute the citie, which no doubt is a laudable thinge; and I doe marvel that London, being soe great a citie, hath not a burial-place without; for no doubt it is an unwholesome thinge to bury within the citie, especiallie at such a time when there be great sicknesses and manie die together. I think, verilie, that many a man taketh his death in St. Paul's churchyard, and this I speak of experience, for I myself, when I have been there some mornings to heare the sermons, have felt such an ill-savoured and unwholesome savour, that I was the worse for it a great while after; and I think no lesse but it is the occasion of great sicknesse and disease."

Well would it have been for the inhabitants of this vast metropolis had Sir Christopher Wren's plan been carried out at the rebuilding of the city, after the fire of 1666. All churchyards were to have been removed without the town.

In the year 1786, the legislature of Germany passed a law, which was punctually observed in the empire over which Joseph the Second ruled, and which we would do well to imitate, instead of using the under-part of our chapels as store and pest-houses. This law prohibited the burying of dead bodies in any chapel or church whatever; neither rank nor affluence can obtain permission to evade it, as in the enforcement of it no respect is paid to persons.

Of the injurious and fatal effects of exhalations from overcharging burial-places, we have a striking illustration, that

scarcely admits of a doubt*—at least, as far as predisposition goes. In an old work, entitled 'Dr. Dover's Ancient Physician's Legacy,' we have the following; Dover, it must be understood, was an extraordinary character, uniting in his own person the profession of physic and buccaneering. He says:—"When I took by storm the two cities of Guyaquil, under the line, in the South Seas, it happened that, not long before, the plague had raged amongst them. For our better security and the keeping of our people together, we lay in the churches, and likewise brought thither the plunder of the cities. We were very much annoyed by the smell of the dead bodies. These could hardly be said to be buried; for the Spaniards abroad use no coffins, but throw several dead bodies, one upon another, with only a draw-board over them; so that it was no wonder we caught the infection. In a few days after we went on board, one of the surgeons came to acquaint me that several of my men were taken after a violent manner, with that languor of spirits that they were not able to move; in less than forty-eight hours, we had in our ships one hundred and eighty men in this miserable condition."

Dr. Adam Clarke, in his 'Commentary on St. Luke,' advises that "No burying-places should be tolerated within CITIES or TOWNS, much less in or about CHURCHES and CHAPELS. This custom is excessively injurious to the inhabitants, and especially to those who frequent public worship in such CHAPELS and CHURCHES. God, decency, and health forbid this shocking abomination. * * * From long observation I can attest that CHURCHES and CHAPELS situated in graveyards, and those especially within whose walls the dead are interred, are perfectly unwholesome; and many, by attending such places, are shortening their passage to the house appointed for the living. What increases the iniquity

* For further evidence consult, *Diemerbroek*, *Agricola*, *Ammianus Marcellinus*, *Quincy*, *Wolfius*, and though last, not least, the works of Mr. GEORGE ALFRED WALKER, that most *indomitable* advocate for the prevention of the most disgusting abuses of our dead, with the view of benefiting the stultified living.

of this abominable and deadly work is, that the burying-grounds attached to many CHURCHES and CHAPELS are made a source of PRIVATE GAIN. The whole of this preposterous conduct is as indecorous and unhealthy as it is profane. Every man should know that the gas which is disengaged from putrid flesh, and particularly from a human body, is not only unfriendly to, but destructive of, animal life. Superstition first introduced a practice which self-interest and covetousness continue to maintain."

The Rev. Dr. Render, in his 'Tour through Germany,' published in London, in the year 1801, mentions the following case:—"In the month of July, 17—, a very corpulent lady died at ——. Before her death, she begged, as a particular favour, to be buried in the parochial church: she died on the Wednesday, and on the following Saturday was buried according to her desire. The day following, the clergyman preached her funeral sermon: the weather was uncommonly hot; and it ought to be observed that, for several months preceding her death, a great drought had prevailed; not a drop of rain had fallen, consequently it was an uncommonly sultry season. The succeeding Sunday, the Protestant clergyman had a very full congregation, upwards of 900 persons attending, that being the day for administering the Holy Sacrament. The weather still continuing very hot, many were obliged during the service to walk out for a time, to avoid fainting; whilst some actually fainted away. It is the custom, in Germany, that when people wish to receive the sacrament, they neither eat nor drink that day, until the ceremony is entirely over. The sermon occupied about one hour and a quarter; after which the bread was consecrated, and, according to custom, remained uncovered during the ceremony.

"There were about one hundred and eighty communicants. A quarter of an hour after the ceremony, before they had quitted the church, more than sixty of them were taken ill; several died in the most severe agonies; others, of a more vigorous constitution, survived by the help of medical

assistance; a most violent consternation prevailed throughout the whole congregation and town. It was concluded that the wine had been poisoned, and so it was generally believed; the sacristan, and several others belonging to the vestry, were immediately arrested, and cast into prison. The clergyman, on the succeeding Sunday, preached very excitingly, and pointed out to his congregation several others concerned in the plot. This enthusiastic sermon was printed. The persons accused underwent very great hardships; during the space of a week they were confined in a dungeon, and some of them were put to the torture; but they persisted in asserting their innocence. On the Sunday following, the magistrate ordered that a chalice of wine, uncovered, should be placed for the space of an hour upon the altar, which time had scarcely elapsed when they beheld the wine filled with myriads of insects; and by tracing them to their source it was at length perceived, by the rays of the sun, that they issued from the grave of the lady who had been buried the preceding fortnight. The people not belonging to the vestry were dismissed, and four men employed to open the grave and the coffin; in doing which two of them dropped down, and expired upon the spot; and the other two were only saved by the utmost exertion of medical talent. It is beyond the power of words to describe the horrid sight of the corpse when the coffin was opened. The whole was a mass of entire putrefaction; and it was now clearly demonstrated that the numerous insects, both large and small, together with the effluvia which had issued from the body, had caused the pestilential infection, which was a week before attributed to poison. On this discovery, those who had been accused of poisoning the wine, &c., were liberated, and atonement made by the clergyman and magistrate for their unfounded charge."

It was said by St. Cyril, when offering an excuse for the mode of burial of the Gentiles, "that their temples were only beautiful monuments of dead men." How differently would he have expressed himself with regard to our Chris-

tian metropolitan churches or temples of this, the nineteenth century, which are loathsome receptacles of corruption!

But a few years ago, in the autumn of 1843, the poisonous effects of disturbing a graveyard were but too fatally evident. The church and churchyard of Minchinhampton are very old,—the latter having served for a burying-ground for the previous five hundred years; it was consequently densely crowded with dead bodies. In rebuilding the church, it became necessary, or was thought expedient, to lower the surface of the graveyard to within a foot or two of the remains of those buried. Many bodies were disturbed during this process, and re-interred. The earth so removed of a dark colour—saturated, in fact, with the product of human putrefaction—was, in a fatal hour, devoted to the purposes of agriculture! About one thousand cart-loads were thus employed—some on a new piece of burial-ground, to make the grass grow quickly, some as manure on the neighbouring fields, some in the rector's garden! and some in that of the patron. The seeds of disease were thus widely sown, and the result was such as any person of common sense might have expected. The diffusion of a morbid poison which soon followed, was evinced by an outbreak of fever in this previously healthy locality. The family of the rector, and the inhabitants of the streets adjoining the churchyard, were the first attacked, and were also the greatest sufferers. The rector lost his wife, his daughter, and his gardener. The patron's gardener, who had been employed in the unseemly act of dressing flower-beds with human manure, also died. In short, wherever the earth had been taken, disease followed. The children who attended the school took fever as they passed the upturned surface of the graveyard, went home, and died; but they did not communicate the disease to those who came near them, nor did it occur in any person who had not been exposed to the cause of its development. Seventeen deaths occurred, and upwards of two hundred children were attacked with measles, scarlet fever, and peculiar eruptions.

Should not the fearful consequences of such unhallowed proceedings be viewed as the retributive hand of Heaven, overtaking those concerned in the desecration of the dead? The appropriation of the soil, which should have been held as sacred;—of human remains, for the purposes of agriculture—the cultivation of vegetables and flowers! and by one, too, holding the sacred office of a pastor. *O tempora! O mores!*

Considering the immense importance of the subject, in a moral as well as in a physical point of view, it is lamentable in the extreme and truly disgraceful to a nation boasting of its character, general superiority, and wealth, that a practice (intramural burial) should obtain, in behalf of which no one single argument can be adduced, but against which, religion, history, common sense, and daily experience may be arrayed.

On reviewing the foregoing observations, and on seriously contemplating the condition of the ill-ventilated rooms and workshops, the damp, dark, and insalubrious cellars,—little better than dungeons,—the dreary, close, stifling courts, and narrow dark alleys of this vast metropolis, into which the light of heaven rarely penetrates;—we say, while contemplating these abodes of our lower classes, (which would be injurious even to swine,) the culpable apathy, prejudice, and bad arrangements of those whose duty it is to remedy such crying evils, cannot but be obvious. In conclusion, we would therefore earnestly recommend to all such delinquents for their guidance, and to all those enlisted in the cause of sanitary reform, the salutary directions as to washing, cleansing, purification, &c., conveyed in the Mosaic Ordinances, especially in the following passages, as showing with what minuteness all matters appertaining to health, to the very freeing of houses from damp, were directed; that we, the enlightened and refined of the nineteenth century, may profit thereby.

" 34 When ye be come into the land of Canaan, which I

give to you for a possession, and I put the plague of leprosy* in a house of the land of your possession;

35 And he that owneth the house shall come and tell the priest, saying, It seemeth to me *there is* as it were a plague in the house:

36 Then the priest shall command that they empty the house, before the priest go *into it* to see the plague, that all that *is* in the house be not made unclean; and afterwards the priest shall go in to see the house:

37 And he shall look on the plague, and, behold, IF the plague *be* in the walls of the house with hollow strakes, greenish or reddish, which in sight *are* lower than the wall;

38 Then the priest shall go out of the house to the door of the house, and shut up the house seven days:

39 And the priest shall come again the seventh day, and

* In explanation of what is meant by this text, 'Leprous House,' Michaelis observes that the walls of houses are often attacked by something that corrodes and spoils them. The walls become wet and mouldy from a mural salt, and that to such a degree as, in consequence of the erosion spreading further and further, to cause the house to tumble down; the plaster also becomes damaged, and requires frequent replacing, furniture becoming spoiled, and persons being injured in their health by sleeping near such walls. If we experience such effects in modern Europe, there is room to conclude that they were more strongly exhibited at the earlier period under notice, and in countries where the houses were but of one story and low. Taking this, therefore, for the 'house leprosy,' the object of the Mosaic law or ordinance is sufficiently intelligible. Besides, to this day there are certain diseases of trees in Egypt and Palestine, to which the name of leprosy is given. In Switzerland, also, they speak of cancer in buildings on the same principle, and why should we not understand the leprosy in buildings of the text as being something of a similar description? It is true that man, stone, and clothes have not the same diseases; but from some analogous circumstances, real or fanciful, the diseases of man may be, and have been, evidently from the above, applied by a figure of speech to diseases in other things.

If we believe that the house leprosy here spoken of was anything relating to the disorder of the same name in man, it will be difficult to account for the symptoms and mode of treatment; and if we suppose that the walls of the house had taken a leprous contagion from man, and were in a condition, when really infected, to transmit it to man, the very direction to remove the furniture before the entering of the priest, would lead to the contrary opinion, for removing the furniture would be calculated to propagate the leprous infection. It was the damp and unwholesome state of the house to which attention was directed.

shall look: and, behold, *if* the plague be spread in the walls of the house;

40 Then the priest shall command that they take away the stones in which the plague *is*, and they shall cast them into an unclean place without the city:

41 And he shall cause the house to be scraped within round about, and they shall pour out the dust that they scrape off without the city into an unclean place:

42 And they shall take other stones, and put *them* in the place of those stones; and he shall take other mortar, and shall plaister the house.

43 And if the plague come again, and break out in the house, after that he hath taken away the stones, and after he hath scraped the house, and after it is plaistered;

44 Then the priest shall come and look, and, behold, *if* the plague be spread in the house, it *is* a fretting leprosy in the house: it is unclean.

45 And he shall break down the house, the stones of it, and the timber thereof, and all the mortar of the house; and he shall carry *them* forth out of the city into an unclean place."

LEVITICUS, chap. xiv.

THE END.

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OBSERVATIONS

ON

THE NATURE, CAUSES, AND TREATMENT

OF

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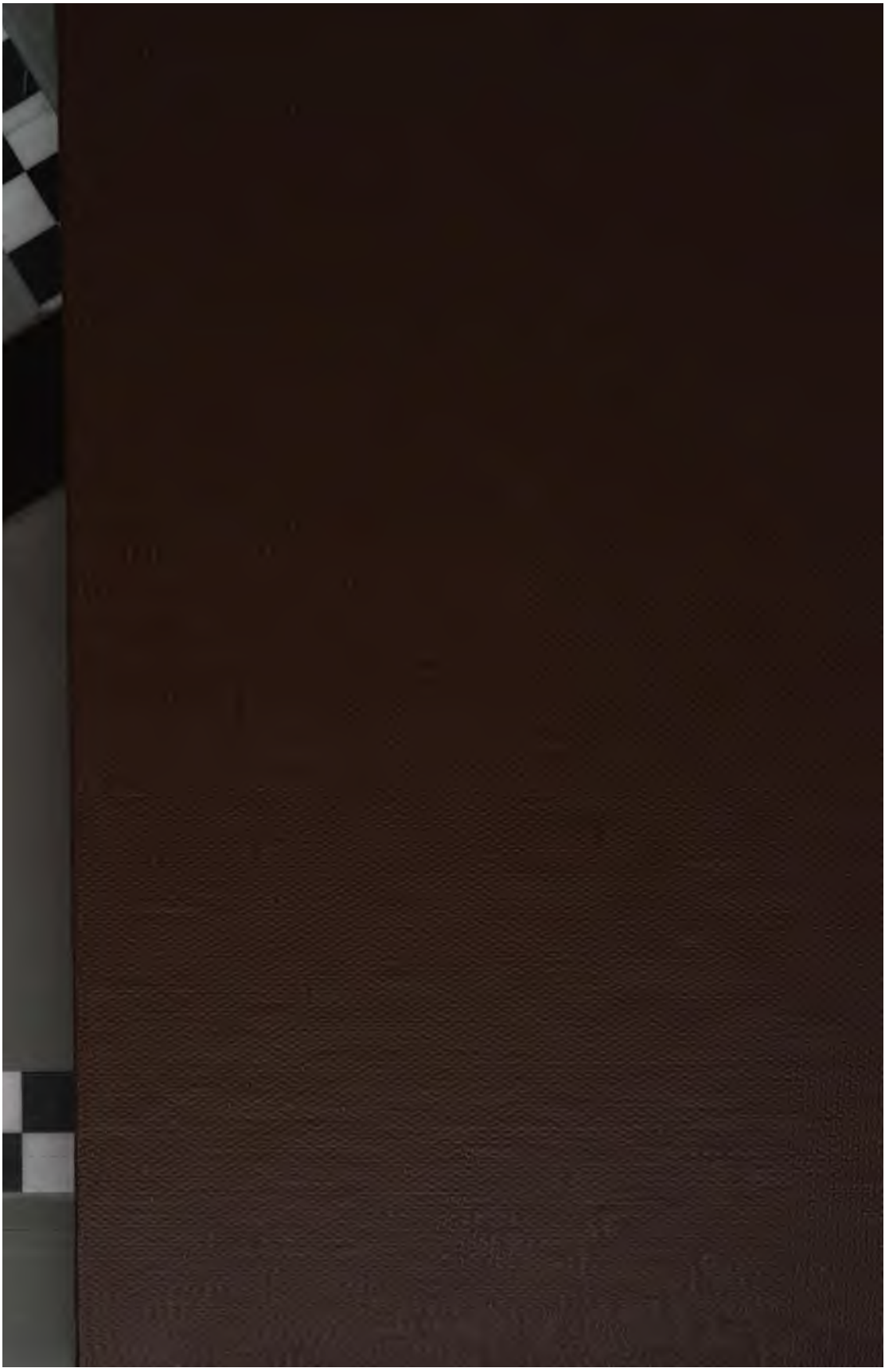
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